L. E. Opdycke
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AUGUST
1910

MOTOR BOATING

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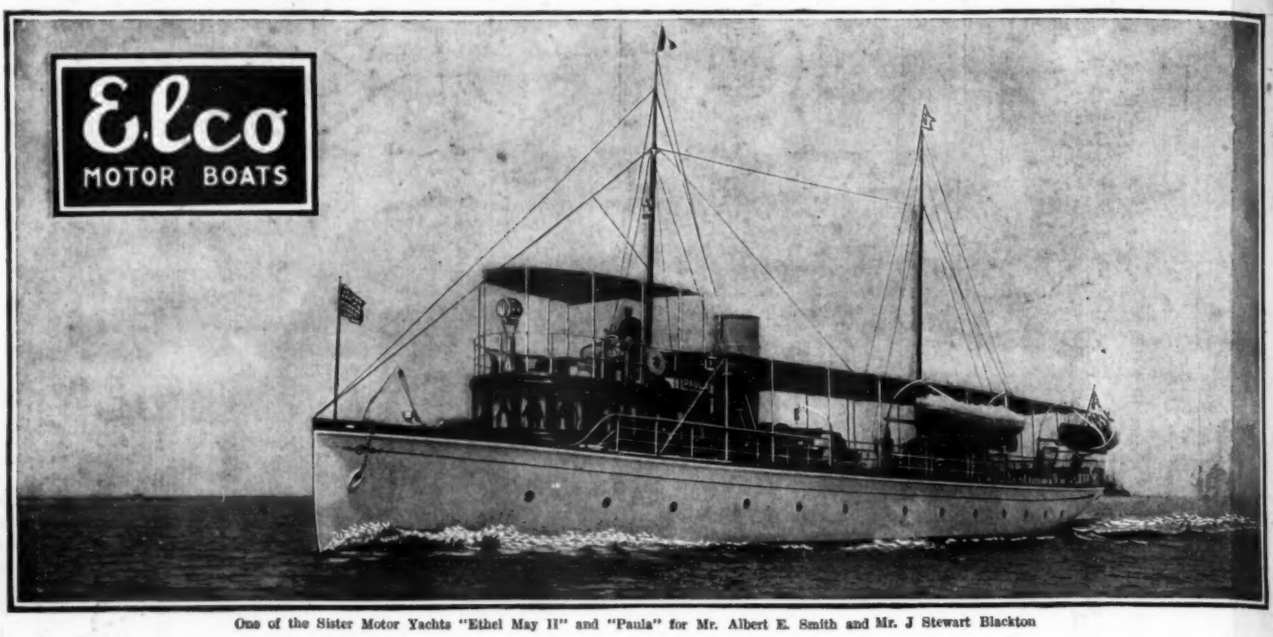

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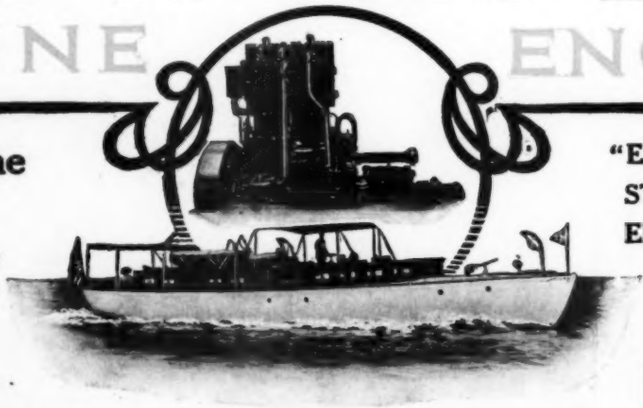

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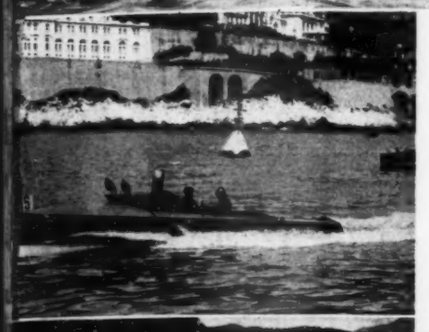

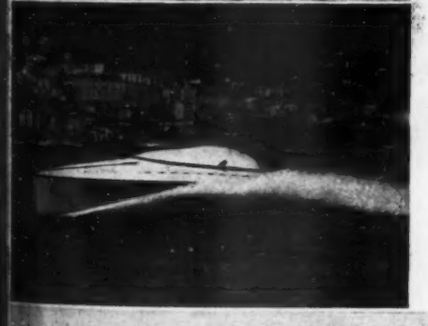

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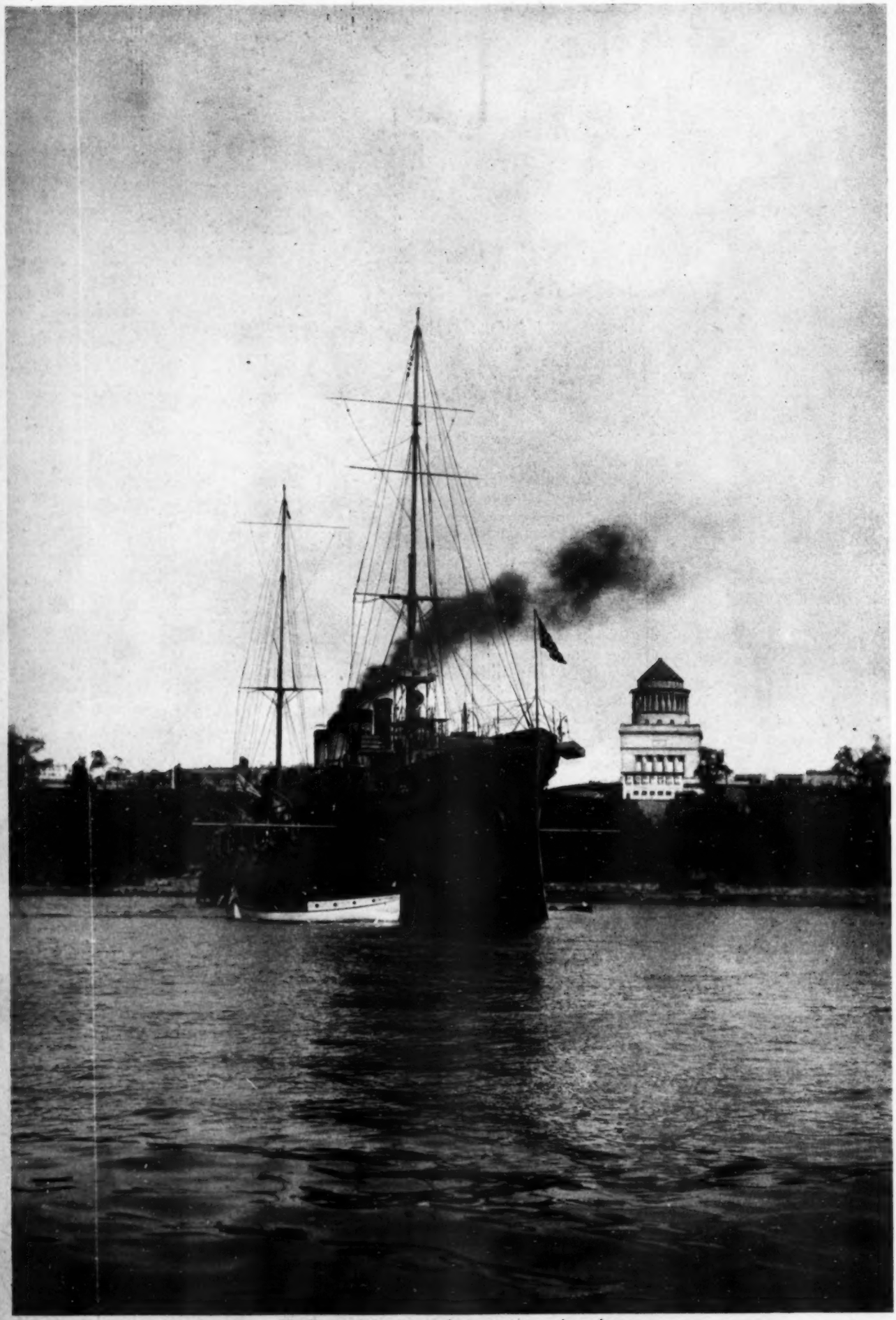


The lion and the mouse, the two extremes in cruisers.

MOTOR BOATING

THE NATIONAL MAGAZINE OF MOTOR BOATING

Making a Marblehead Record.

How Blue Peter V Made a Blue Streak From Marblehead, Mass., to Bay Ridge, N. Y. The Sixth Running of the Cruising Race Around Cape Cod.

By John Philip Sousa, Jr.

AT ten o'clock on Friday, the 15th, I walked into the house of the Corinthian Yacht Club at Marblehead, Mass., and asked of the liveried chap who stopped me if I was right in my belief that the Marblehead Race would start from there on the morrow. The Marblehead Race? He said he knew naught of it. "Strange," said I to myself and then, continuing mentally, "Corinthian Yacht Club, Marblehead, Marblehead Race." And again to the flunky, "This is the Corinthian Yacht Club?" "Yes, sir." "At Marblehead?" "Yes, sir." "And you don't know anything about the motor boat race that starts from here to-morrow?" "No, sir. Not I, sir. There's a bulletin-board over there, sir." I sought aid in the bulletin-board and found there notices of this sort of a race off that point at such and such a time, of a meeting of some committee on a day this week or next, but not one line did I find that would indicate that there ever was or ever would be a contest for motor boats, commonly known as the Marblehead Race.

I pinched myself and turned again to the flunky; I could find no one else to ask about it. I put him through the catechism again with the same result as before. Finally a bright thought struck me and I asked him if he had ever heard of a boat called Blue Peter V. A gleam of intelligence—the human kind—passed over his countenance as he said that a boat with a name something like that had been seen around there the day before and was then, he thought, over at the wharf near the big sign "Gasoline" on the other side of the harbor. I looked as he pointed and saw the sign and, yes, I could see Blue Peter.

So far, so good, but how to get to her? A ferry furnished the most convenient means I learned and, after watching her sail by once, because they did not tell me that she stopped at the club landing only when hailed, I caught her on the second lap and was soon aboard the boat on which I was booked to sail in the race on the following day.

"Where are the other boats?" I asked. And they said, "Out there." I looked and counted three. "Where are the others?" "There are no others." "But," I put in, "I understood there were fifteen entries?" "It may be so, but there are four to start." "And last year there were twelve," thought I.

These are the boats that were to race:

Blue Peter V, owned by R. C. Seymour of the Larchmont Yacht Club; length, 39 feet 9½ inches; engine, 50-60 h. p. Holmes.

Oeyesee, owned by James H. Smith, Staten Island Yacht Club; length, 38 feet; engine, 40 h. p. Sterling.

Elmo II, owned by F. B. Giles, Jr., New Rochelle Yacht Club; length, 34 feet; engine, 18 h. p. Standard.

Aldebaran, owned by Edson Raft, Manhassett Bay Yacht Club; length, 37 feet; engine, 25 h. p. Holmes.

We were measured, although it seems it didn't "take." At any rate, at the time of writing it looks as if the job would have to be done all over again for some were not satisfied with their allowances. We took on stores, including 280 gallons of gasoline and enough food and such things—and the "such things" were all in one lonesome little bottle that held as much at the finish as it did at the start—enough food and such things, as I was saying, to last eight hungry men for at least a week. We were measured, filled up and then we waited for the morrow and for our navigator who was to arrive on the 9 o'clock train.

Nine o'clock came in due course of time but no train and no navigator. We learned that the train was late—30 minutes late on a 30 minute run. Later we learned that the train would be later owing, it was reported, to the fact that a bridge on the line had burned down. We began to wonder if we were really going to get that navigator after all. But I was not worried for, could I not navigate? Did I not know where the North Star is or should be? Could I not tell a lightship from a lighthouse in daylight? Of course, I could, and so I worried not. But my ability as a sailor of ships was not to be tested, for the navigator came. The navigator came and at 10.00 o'clock there boomed a preliminary gun. At 10.05 we crossed the line and the race was on.

Blue Peter's nose was headed for the buoy on Peaked Hill

The Marblehead Race.

Start.—Off Corinthian Yacht Club, Marblehead, Mass.

Finish.—Off Crescent Athletic Club, Bay Ridge, N. Y.

Distance.—285 nautical miles (course running outside of Long Island).

Winner.—Blue Peter V, owned by R. C. Seymour, New York.

Second.—Elmo II, owned by F. D. Giles, Jr., New York.

Best Actual Time.—Blue Peter V, 27 hours, 34 minutes and 45 seconds.

Average Speed of Winner.—10.55 nautical miles an hour.

Best Previous Time.—30 hours, 40 minutes (for 270 mile course), made by Hopalong in 1907.

Previous Winners:

1905 ..... Talisman
1906 ..... Sis
1907 ..... Picaroon
1908 ..... Irene II
1909 ..... Elmo II.

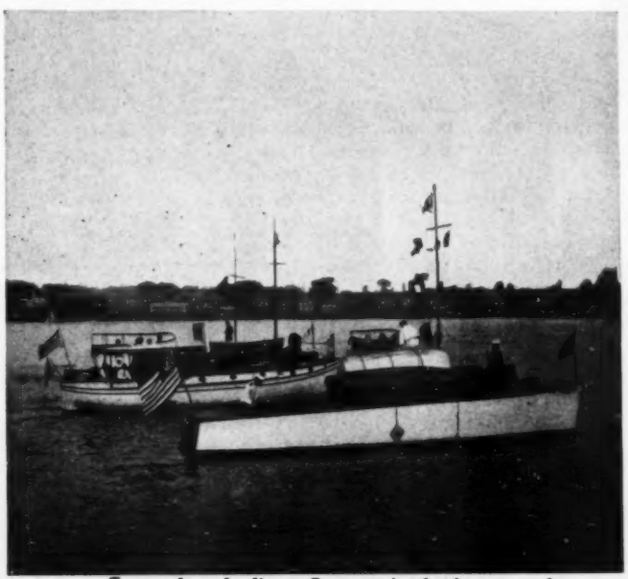
Elmo II and Aldebaran, second and third in the race.

Bars. The weather was fine and a fresh breeze blew from the northeast. Five minutes after the start the other boats were a hundred yards astern. One hour and a half later they were all hull-down in the field of a powerful pair of glasses and we were very glad for we needed a lot of room between us and them, as we were the scratch boat and had to give big allowances.

We came up with the buoy on Peaked Hill Bars and turned to follow down the "fore-arm" of Cape Cod. We clung close to that long stretch of sand along the Cape and were no more than a quarter mile off shore at any time. Several parties of natives and "summer folks" hailed us and waved to us as we passed by. Over the land we could see a fine old thunder cloud struggling with the northeast breeze and it was a battle royal with the outcome at that time very much in doubt.

At Monomoy we turned Blue Peter till she headed for Cottage City. The breeze strengthened considerably at the same time and we ran before a heavy following sea. On the run to Martha's Vineyard the weather and water gradually got worse. When off Shovelful lightship we missed, actually by no more than ten feet, running plump into a seine that seemed a quarter of a mile long. What a fine thing, we thought, to get caught in our propeller.

After passing Gay Head I decided to "turn in" for a nooze and was soon asleep in the cock-pit. Soon afterwards, Mr. Robinson, the navigator we almost didn't get, who had been very thoroughly and continuously on the job from the time we'd crossed the line, decided that he, too, was tired, and that he would likewise snooze. So after he had laid the course he laid him down to sleep. And he laid in the nearest soft spot which happened to be my lap. "Help yourself," said I, being too tired to care much how I was imposed upon. Well just as the navigator fell asleep—and he fell so quickly that I didn't know he'd gone—a mighty squall struck us. Rain? The deluge was like a leak in a tin roof beside it. Blow? That wind would have made a hurricane look like a gentle summer zephyr. The seas that had been tossing us about, that had made us climb to the heavens one minute and rush down to the bottom the next, were flattened out and we got a long swell after that. It poured and blew and it poured and blew.



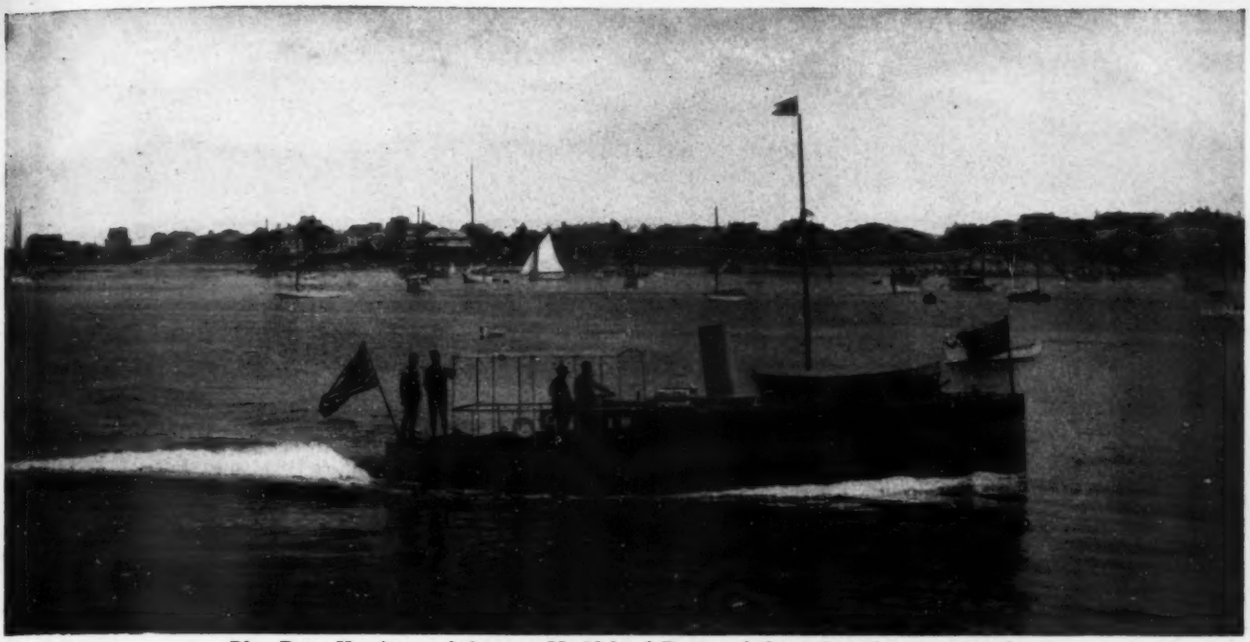
Grouped at the line. Oeyesee in the foreground.

Measurer McKay figuring out how much time Blue Peter had to give the other fellows.

I called to Elliott who had been sitting in the companionway nursing a finger which he had sawed half off while trying to cut himself a slice of bread, and told him to bring up slickers. I had 'em on and those that Elliott brought I threw over the sleeping navigator. At this time I could just make out Blue Peter's bow some thirty feet away. We were shipping seawater now and then and rain water all the time.

Suddenly the navigator awoke. And it is not strange considering that he got at least a bucketful of the briny in the face. He yawned. He looked around. He saw that his feet were covered and then he fell asleep again. And as the winds roared and the waters splashed, I heard him snore.

Finally the squall blew out, over, away or something and the seas came back. Morning broke cold and we piled on clothes. At eight or nine o'clock it warmed up and we made a fine run of it up the beach, passing the submarine Salmon



Blue Peter V, winner of the 1910 Marblehead Race, and the maker of a new record.

on her way from Bermuda to Boston. At 1.38 we were at the finish line off the Crescent Athletic Club.

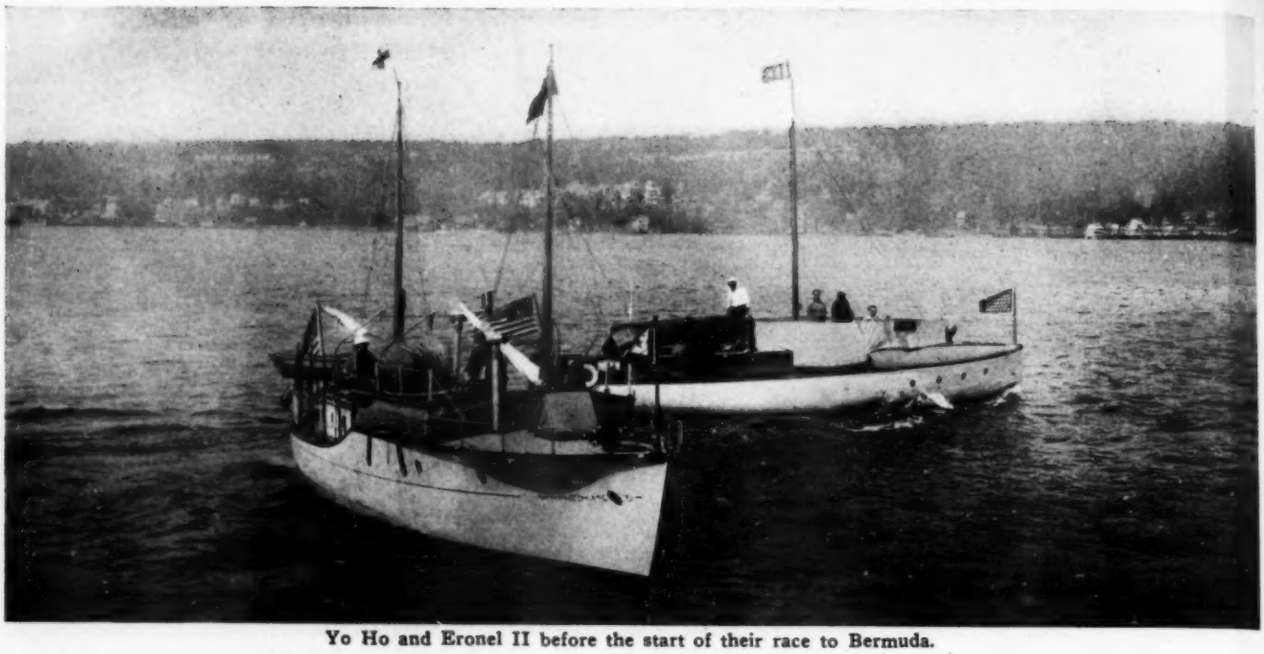
Now that's the story of Blue Peter's race. That's all there is to it. The motor did a very regular stunt without a miss or a skip and all we did to it after starting was to keep it oiled. In climbing seas she dropped to 570 revolutions and in running down she climbed to 600. Outside of these limits she did not go, not to the extent of one r. p. m. at any time.

Blue Peter V is not a freak—far from it. She is a rational cruiser with lots of room and comfort and a powerful, reliable engine. When we reached Bay Ridge at the end of the race there was enough left of the original supply of gasoline to drive us back to Marblehead and we had averaged better than 10½ nautical miles for a hard run of 27 hours. We beat the record, and I think it is safe to say, we averaged a higher speed than any motor boat ever made before in a long ocean contest. A month before the start we laid out a schedule calling for a run of 27 hours and we did the trick in just 34 minutes and 45 seconds slower than that owing, we believe, to the weather we encountered between Gay Head and Montauk.

The figures of the contest follow:

Boat and Owner.	Finish. H. M. S.	Elapsed Time. H. M. S.
Blue Peter V, R. C. Seymour	1 39 45	27 34 45
Elmo II, F. D. Giles, Jr	8 40 00	34 35 00
Aldebaran, L. E. Raff	10 45 00	36 40 00
Oeyesee, J. H. Smith	Disabled.	

All four contestants at the float of the Corinthian Yacht Club before the start.



Yo Ho and Eronel II before the start of their race to Bermuda.

Aboard Yo Ho in the Bermuda Race.

The Story of the First Woman to Participate in the Oldest Ocean Contest. How Yo Ho Raced with Eronel from New York to Hamilton Harbor.

By Mabel M. Bacon.

ON Saturday, June 18th, at 12.30 we left on Yo Ho bound for the New York Motor Boat Club to start in the Bermuda race. We pulled away from the Construction Company dock on time after much excitement over the 100 and 1 things it was necessary to do at the last moment and with the floating stage and dock crowded with employees and friends to wish us good luck. Many of my friends predicted that I would return from Bermuda by steamer if I were ever fortunate enough to land there alive, but as I was perfectly sure of the seaworthiness of Yo Ho, the strength of her construction and the absolute reliability of our crew with whom I had shipped many times before, I felt positive of a safe journey there and return.

For many weeks Mr. Bacon and I had been looking forward to the trip and we had taken lots of pleasure in fitting Yo Ho out in everything that could add to our comfort or safety. The galley was given special attention, as we believe that without proper food and plenty of it, good work could not be obtained from the crew. We stocked up with the regular navy rations for seven men for six weeks and then we added to that 800 pounds of canned goods, fresh fruits, crackers, cakes, bacon, cooked hams, preserves, etc. Our wine lockers were full, but these were kept locked except when in port. Our shipmate range worked perfectly in all kinds of weather, our ice box would carry 500 lbs. of ice and still leave room for plenty of food. The locker room and standing space in galley were ample and ventilation perfect in galley even when battened down, so we felt this phase of the trip well attended to. For several weeks before the race we had had the Popham Beach Life Saving Station phone us whenever it was very rough outside and then we would always take Yo Ho out to see where we could make any improvements on her. Just before starting our amateur crew had unexpected work come up that made it imposible for them to join us in the race, so we depended on picking up the two men needed in New York. On leaving Bath our crew was as follows: Mr. Bacon, Master; Captain Reuben Fletcher, Navigator, myself and two engineers.

The author at the wheel of Yo Ho.

Our engines were two 12 h. p. twin screw B. M. C. Co.'s engines, jump spark, 2 cycle, that we build through our slack season to keep our skilled mechanics together while the yacht work is slack, and while these are engines we have never advertised and seldom put in anything but fishing boats, Mr. Bacon wished to try them out on this race as a 2 cycle engine, so far, had never before been used in these long distance ocean cruises. We left our dock as stated at 12.30 with fair weather, but as we ran out of the Kennebec the fog shut down thick and continued so until we reached New York.

All hands turned out at 5 A. M. on the day the race began to get things shipshape for the start. I got all hands a big breakfast and then we took Yo Ho into the dock to get our final supply of water and fresh food, also load tenders on board. Besides our 14 ft. dinghy the racing committee decided we must take another boat and a club member who was unfortunate enough to own a Wee Pup tender, very kindly offered us this which we accepted (a Wee Pup tender would be about as much use on the ocean as a water melon seed, and no one knows that better than we do, for we have manufactured many hundreds of them). We were handed our rating at 8 A. M. by Mr. Whittaker, Mr. Bacon remarking at the time that there must be some error in this as it was only 1 hr. and 15 min.

Mr. Bacon put me in Capt. Fletcher's watch, putting Mr. Rigby in his watch. For an hour we ran up and down in front of the club to warm up our engines. The start was to be at 10 from the committee tug. At 9.55 the committee signaled us to come alongside, this we did and were given a time allowance of 1 hr. 17 min. and 15 sec. and told that Eronel's engine was in trouble and that the start would be delayed for 15 min. Mr. Bacon again stated to the committee that the time allowance was not correct and to please look it over again. We also noticed that Eronel had more paid crew on board than the racing rules allowed, but as we were there to race and not to kick, nothing was said about this. At 10.15 we crossed the line ahead of the Eronel, but she rapidly made up the intervening space and took the lead. I turned the

wheel over to Capt. Fletcher to take Yo Ho out of the harbor. At noon I went below and got a good dinner of beefsteak, asparagus, baked potatoes, salad and dessert for all on board, and just as we had finished we sighted the committee tug. We ran close aboard to wave good-bye to them. 1.40 P. M. at Scotland lightship from which we took our departure. Set log and watch for passage to Bermuda. The Eronel was now hull down in the horizon. The ocean was like a mill pond, while we were praying for heavy weather. My watch came from 4-6 (first dog watch) and 8-12, still calm, engines running like clocks. After Capt. Fletcher had coffee for all hands at midnight I turned in with a blanket and pillow on the bridge seat for a four hours' rest.

June 26th, Sunday 10 *A. M.* Still as a mill pond, but can tell by color of the water that we are in the Gulf stream. 12 noon, Lat. 38.25, Long. 38.25. All ports and skylights have been open since we left New York. No one seasick and everyone happy. All hands have terrible appetites. Have discovered a great scheme for fishing. I have tied two cod hooks on to the boat hook and by leaning over the side can fish out lots of gulf weed which seem to be alive with small crabs and rainbow colored fish. Have quite an aquarium in a quart fruit jar. Also several flying fish were found on the deck this morning, no doubt attracted by the lights. On watches off Mr. Bacon makes all hands sleep on deck. No smoking allowed except on after deck and that by permission from man in charge. 4 P. M. Just come on watch to find it getting rather choppy. At 8 P. M. My watch again. It is still rougher and at 9 Mr. Bacon sent me below. Wind rising and sails are being set. Waves piling up in every direction, at 10.30 Mr. Rigby ordered below also. My husband and Capt. Fletcher will stay on deck until it moderates. I look down into the engine room and see both engineers crawling around on their hands and knees oiling up everything and keeping things going. So far engines have not skipped once. Minnie (the starboard engine) is turning up 20 revolutions faster than Carrie (the port engine).

Monday, June 27th, 12 noon. Lat. 36.30, Long. 68.50. Called to my watch at 4. All hands had breakfast and lots of fun over some of the things that happened in the roughest part of the night. There is a short steep swell and a light breeze. We made fine time in the rough water last night and our propellers did not race once. We are hoping it will get rougher to-day. Did not take any green water on board last night except when temperature of water was being taken in a bucket it was accidentally upset down the companionway and landed on me.

Have discovered that the assistant engineer has an ingrowing appetite and every time I look down the after hatch find him in the ice box, so every time I find him there I make him fix some melons or salad up for all hands. He can also scramble eggs, make toast and fry bacon. Capt. Fletcher can cook anything to the Queen's taste, so with three cooks on board we are well provided for. At 10 A. M. odor of gasoline was detected and on tracing the matter up found someone had kicked a deck pipe loose from one of the extra racing tanks and two hundred gallons of gasoline was lost overboard. One engine was immediately shut down so as to increase our cruising radius in case of gasoline shortage, while stock was taken of gasoline and all pumped into forward tanks, this took us about three hours to accomplish and we still found we had plenty of gasoline left so Carrie was started again.

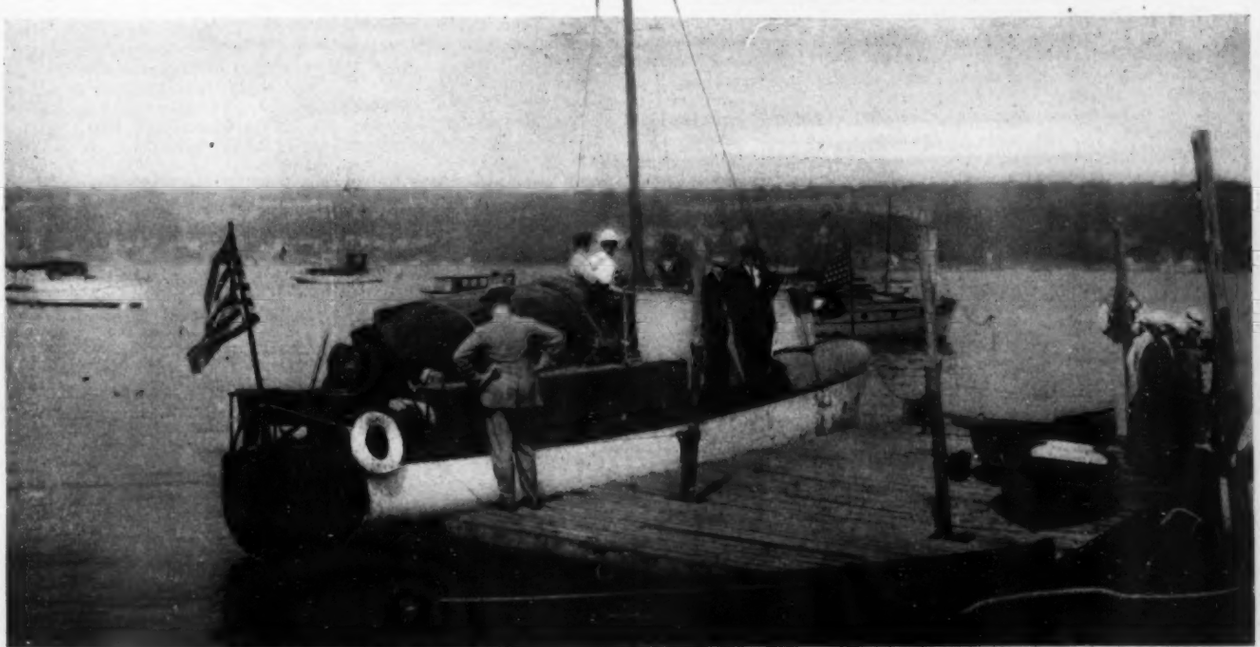
Lookout sighted boat astern and we discover that Eronel is coming up with us, she comes gradually into sight. At 7 P. M. she is abeam about 3 miles off on our starboard; at midnight she is just going out of sight.

Tuesday, June 28th, 12 noon. Lat. 34.10, Long. 65.20. All hands well and anxious to make good time, as I did not turn in, as I was anxious about the time we were making and seeking Eronel astern last night has added a lot to the fun of the race. I had pictured her as tied up at Hamilton 24 hours before we could possibly get in. Find on taking our sights that the Gulf stream has taken us 75 miles out of our course. I have made up my mind not to turn in until I have sighted Gibbs Hill light to-night.

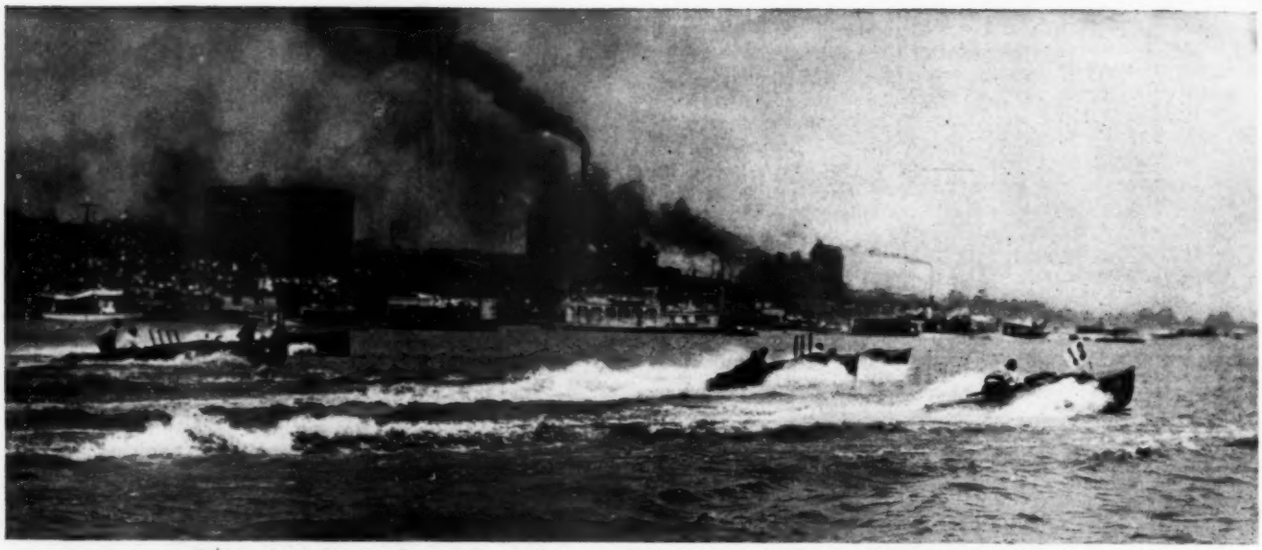
Wednesday, June 29. At 2.30 A. M., I saw a light which I thought was Gibbs Hill, it would flash about 30 seconds and then go out 30 seconds, it did this several times but found to my disappointment that it was the morning star rising behind some clouds. At 3.30 sighted Gibbs Head light on port bow, was at the wheel but did not call anyone for five minutes as I wanted to make sure and not have the laugh on me this time. Called the Captain and Navigator and we soon shaped our course for St. David's headlight. I was very impatient over having to keep out from shore so far. At 6.00 Pilot came alongside but we did not take one on as Capt. Fletcher knew the way in. At 6.55 passed the stake boat, then took on health officer and made for St. George's where we were told Eronel had arrived some time before.

Of course we are sorry to lose the race, but we had had a fine trip and will try to win again next year. Eronel's crew came on board at St. George's and said they laid to for 6 hours Monday night in the Gulf stream, the reason for which was not quite clear, except that they said their navigator and all hands had been seasick. Altogether I feel very well pleased with the performance of Yo Ho, her engines and crew—she proved an ideal sea boat. Our two old jump spark fishing engines had made the trip without a skip. All hands came in happy, well, brown as Indians and very sleepy.

Mr. Cochran took a local pilot on board his boat, and we followed them up to Hamilton where we anchored off the yacht club. Shortly after anchoring several of the members of the yacht club came on board to make us welcome which they did royally.



Eronel, winner of the 1910 Bermuda race. She is 45.3 feet long, has a 25 horsepower Craig engine, and is owned by Mr. Samuel Cochrane.



The start of the 10 mile race for 26-footers, which was won by Scamp III in 23 min. 31 sec.

Peoria's Big Motor Boat Meet.

How Red Top II Beat Hoosier Boy and Cero II and Won the Western Rivers Championship. Results of the Third Annual Regatta of the M. V. P. B. A.

By A. T. Griffith.

WHEN W. E. Hughey's Red Top I was defeated at Burlington, Iowa, in July, 1909, for the Western Rivers Free-for-all Championship, that yachtsman declared he would win that title if it cost him $100,000. He has built two boats since that time. With one he defeated Independence II, owned by Ed Koenig, of St. Louis, and Mascot, owned by Ernst Corsepius, of Fort Madison, at the St. Charles, Mo., Centennial regatta last October. Hughey was not satisfied with this boat, however, and immediately ordered another from W. H. Beauvais, of St. Louis, Mo., to be delivered at his Bellevue. Iowa, home in June, 1910. This craft is just under forty feet in length and into her went an eight cylinder, two cycle motor built especially for the hull. It is calculated to develop 280 horsepower.

This new Red Top II was launched into the Mississippi at Bellevue, Iowa, late in June. It was due to race on the fifth of July at the third annual regatta of the Mississippi Valley Power Boat Association at Peoria. All possibe haste was made and, during the first tryout of the craft, the heavy motors simpled ripped themselves loose from the light hull, made a wreck of the stern of the boat and narrowly escaped sinking to the bottom of the river. Due to preceed towards Peoria, this damaged craft was mounted on a barge. A small steamer was chartered and while en route, workman rushed the necessary repairs. She was hauled down the Mississippi to Rock Island, through the Hennepin Canal to the Illinois River, 50 miles above Peoria, and on July 3d was slipped from the barge into the water and towed into Peoria that evening.

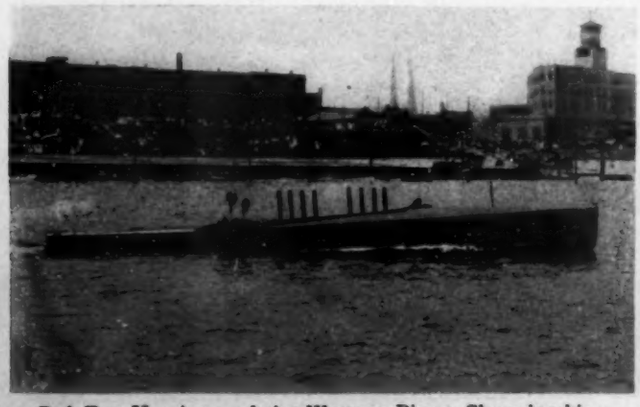
The racing program was to start the following day; but the free-for-all struggle was not to come until the next day following. Red Top was tried out over the five-mile triangular government course in Peoria Lake at moderate speed. Her machinery worked smoothly.

"I'll rip that hull into splinters today," remarked Hughey a few hours before the free-for-all was to start; "I need a new one, anyway," he concluded carelessly; and Hughey wasn't confident. He had spent two days in looking over the situation. The greatest collection of little speed craft ever assembled before in America were ripping back and forth across Peoria Lake. The free-for-all style of racing, with the only limitation, the length over all, was receiving a gruelling test, and it was standing this test marvelously. Twenty-footers were competing against twenty-six-footers and going on up to the 32-foot class.

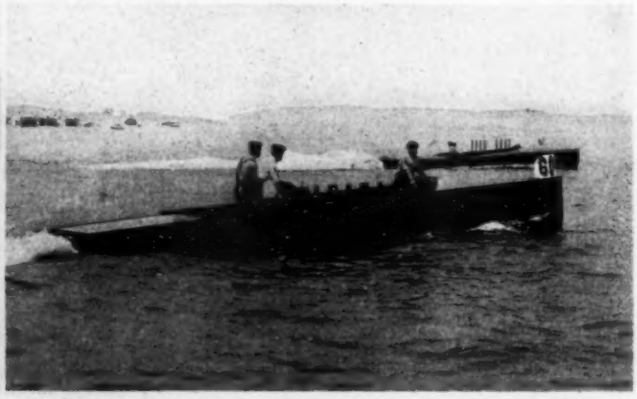
Steam was being used as a motive power in one of the contenders. Like a husky little torpedo boat, two big funnels rising a foot or two above the driver's head, was Cero II, Robert Deming's entry from Cleveland, Ohio. This product of John Shepard, of Essington, Pa., which carried a White Steamer equipment in a thirty-two foot hull, had cleaned up the thirty-two-footers in a grinding contest against eight entries.

True, L. H. Mills' Beat It, from Chicago, had cut the course by accident, finishing ahead of Cero II. Then on the first lap of the five mile course, the little twenty-footer, M. V., carrying a 6 cylinder motor, had outfooted him at every turn until she swamped herself and tore out her feed tanks; but Cero II had shown class enough to prove formidable for Red Top II in the free-for-all.

Hughey regarded with awe the long black product of the Oshkosh shops, which Fred. Athearn was managing, carrying eight cylinders, resembling beer begs in size and which drove the Dixie-like nose of Oshkosh through the water with uncomfortable ease. Then the would-be champion had his first look at new Hoosier Boy. Just out of the shop, without a chance even to adjust her carbureters, J. W. Whitlock was working every spare second to give his motors a smoothing out. An hour before the race was to start Whitlock had run over the course. The Hoosier cut the water smoothly, left little wake and traveled easily. She was not showing over twenty miles an hour; but clockers from the upper end of the course reported that she had been cut loose for a couple of hundred yards away up there and had nego-

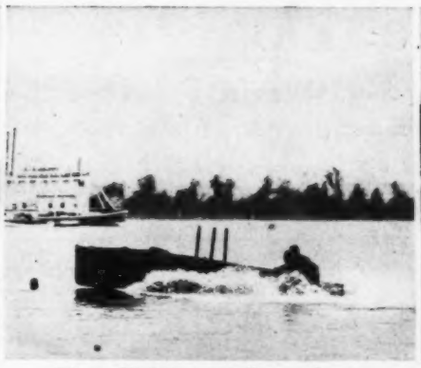


Red Top II, winner of the Western Rivers Championship.



Hoosier Boy came in second in spite of engine trouble.

Wux II won the I. V. Y. C. Handicap.



Pirate II doing 20 miles an hour.

Elbridge II, second in Class C.

tiated that distance in nothing at all. This was the last straw and Hughey saw the yellow flag go up and heard the preparatory gun with almost certain defeat staring him in the face.

The lake was smooth. Just a ripple of breeze came down the course. The grand stands on the shore were packed with a black mass of humanity and the shore lines as far as he could see in either direction were fringed with spectators. Climbing into his Red Top II, he pulled off his coat, instructed his engine driver to roll her over and Red Top II circled out to jockey for a start.

Nine racing boats were in that field, each belching and roaring. The din his own motors were making could not drown all of the roar around him as Red Top scored down the first time. Oshkosh was sulking and the red flag waved him back. Again they tried and again Oshkosh was out. A third was no better but finally Oshkosh spit up a column of fire and lurched into motion and the field was ready.

Close to the pole Hoosier was slowing a trifle behind the field. Kelso and Hilsinger's Comet, a twenty-footer which had set up a new American record for that class the previous day was next. Beside her ran the speedy Missouri II. Red Top was alongside the little fellows with Oshkosh and the Steamer Cero II to port, Beat It and the two Vim boats shoving their noses into line from behind.

The white flag had superseded the red, a long puff of white smoke and the cannon had roared out the signal to start. The roar of nine great power plants sounded like the beginning of a battle. The nine boats shot away, each leaving a creamy trail behind it. It was the greatest start ever witnessed in America. The racing sharks in the judge's stand who had followed motor boats since their invention had never seen anything like it. The stands set up a cheer amid the blowing of whistles and the ringing of bells.

The long, glistening sides of Hoosier Boy shot out to starboard into unruffled water and set up a terrific pace toward the first buoy, a mile and a quarter away. Round went his timer to the last notch and glancing to the left the western river championship looked like a troubled dream to Red Top's pilot, for the steamer Cero II, starting in the ruck on the far outside, had described a sweeping semi-circle and with a peculiar whistling roar had already cut across the top of half the field and a few seconds later had Red Top off her stern, overhauled the Hoosier and tore toward the first mark.

"Doing forty an hour," Hughey thought to himself, but he stuck to the work, for the little fellows had been shaken off; Oshkosh was being dropped behind and Beat It, left a few yards from the post, lost a precious minute again getting under way.

Red Top II swept around the first buoy in third place, Cero II was 300 yards to the good, traveling like a rocket, while he was gaining on the Hoosier. But a quarter of a mile further out to the 2½ miles turn Cero II suddenly quit. A few hundred yards further out Hoosier coughed up black smoke like a locomotive and half a minute later this boat also came to a standstill, leaving Red Top II a clear field. Her yellow sides ploughed back the water in perfect curls, she was traveling like a race horse and Hughey swung her easily on the turn and headed down the stretch on the finish of the first five of the twenty miles all alone. She passed the judges' boat with a mile of clear water between him and the next contender, which happened to be the twenty-footer Comet. Missouri II and Vim, of Dubuque, Iowa, trailed along with Oshkosh following. Hoosier had recovered her stride and was coming along in sixth place, but her motors were grumbling irregularly.

Red Top did not improve her lead much in the second lap, for Hoosier was coming up faster, having regained third place and during the next lap crowded Comet out of second position.

In this position the third and then the fourth lap was run, Red Top coming down the last stretch at the fastest clip she had displayed during the race and was received with one long continuous roar of cheers, whistle-blowing and bell-ringing.

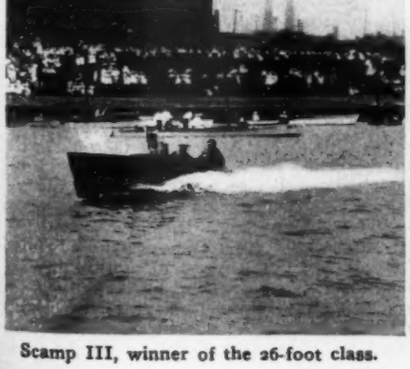
Hughey didn't need to spend all of the $100,000, for he had won the Western rivers championship, the $1,000 cash purse, the $1,000 Thos. H. Webb perpetual trophy, the National Hotel Trophy Cup, the M. V. P. B. A. Trophy Cup and the silk banner which went with the title.

Red Top's time had not been phenomenal. She had covered the 20 miles, with its several turns, in 43.40½, or a trifle under 28 miles per hour. Hoosier Boy three minutes and a half behind, but the preceding year had made one lap of the same course at a better speed than any the Red Top had made. Considering that the Hoosier had run into trouble and had come to a dead stop of at least two minutes; that Cero II had quit entirely on account of a broken pump, Hughey's escape was a narrow one and he had little margin on which to hang his future hopes, but for the present he was surely the champion.

All alone the next afternoon the newly made western champion drove his Red Top II down over a mile course against time. The stop watches held by seven different men showed that Red Top negotiated the distance in 2:06⅗, or a shade over 28 miles per hour. Cero II had a try at the same performance. Coming like an arrow over the course, heaving out great white wings on either side, Bob Deming's steamer, out of water aft of her forward funnel; "Only her wheel in the water," the awed spectators whispered to each other; made the distance in 1.49⅖. That spelled 32.9 per hour and Hughey's championship was dimmed again though not lost.

The Red Top's running mate, Comet, owned by Kelso and Hilsinger, of the same little Iowa city, had really done the marvelous thing. America's record for 20-foot boats had been set up by M. V., owned by R. H. Combs, of St. Louis, in 1909. This mark was 19.79 miles per hour, or a shade less than a mile per foot in the boat's length. Comet did 15 miles in competition in 25.43, or at the rate of 23.43 miles per hour, thereby setting up a new American and incidentally a new world's record for displacement boats of that length.

(*Results continued on page 50.*)



Scamp III, winner of the 26-foot class.

M. V. another of the little fellows.

Beat It, disqualified for first in Class D.

Making the Boat Go Backwards.

A Discussion of the Several Types of Reversing Devices and Descriptions of the Various Makes. Planitary Type Most Common, with Either Multiple Disc or Expanding Clutch.

The subject of reversing devices is too broad a one to be covered thoroughly in a single article, and therefore it has been decided to take up the two principal divisions of the subject, the reverse gear and the reversible propeller, in two separate articles, of which the following article is the first. Next month the reversible propeller will be considered and all the devices of that kind on the market will be described.—EDITOR.

WITH the advent of the gasoline motor for marine use, there appeared a problem which was of little consequence in connection with its more flexible predecessor, the steam engine. The problem was that of reversing the direction of the boat's motion and of manipulating it at speeds lower than the comparatively limited range corresponding to the normal speed of the motor, and its importance is realized by all who operate motor boats.

To be sure, the average two cycle motor, which has a wide enough range of spark adjustment, will, by virtue of its design, run equally well in each direction, and it may even be reversed by manipulation of the spark control. This, however, while by no means difficult to the experienced operator, is hardly to be advised in any but the smaller plants, as the sudden reversal of direction is bound to produce undue strain in the whole system. In the majority of cases the motor must be stopped and started again in the opposite direction, by hand, therefore, the desirability of some sort of reversing mechanism is apparent.

Some of the more elaborate four cycle plants are being equipped with compressed air starting and reversing devices, which while satisfactory in operation, are too expensive and elaborate to be considered in the average case, and some more simple arrangement must be relied upon.

There yet remain two solutions of the problem and by far the majority of cases have to do with one or the other of these methods. The adjustable-blade propeller, the first practical device and for some time the only one to be used has a number of advantages in its favor.

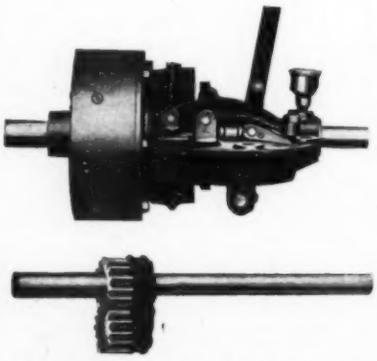
The other method of reversing the direction of the boat is by means of a reverse gear, which, as is well known, is a device inserted between the engine and propeller shafts, by means of which the latter may be made to turn in the same or opposite direction to that of the former, or may be made to remain idle while the engine is running.

By means of a friction clutch the load is picked up gradually so that there is no sudden strain on the system and by partially engaging this and allowing a certain amount of slipping, a wide range of speeds may be arranged for short periods, as when making a landing, picking up a mooring or coming alongside another boat.

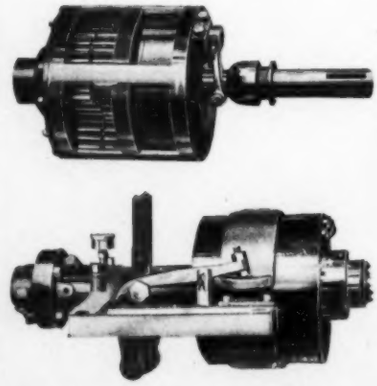
There are a number of devices on the market that accomplish successfully all the requirements of the reverse gear, but, broadly speaking, they all resolve themselves into two classes, viz, the positive or sliding gear type which may be likened to the more elaborate multi-speed transmission of the automobile and which require a separate clutch on the engine shaft to facilitate bringing the gears into and out of mesh. This type while used to some extent abroad is seldom met with in this country. The other, and decidedly the more popular type, is the combined gear and clutch in which the gears remain always in mesh and which is operated by a single lever.

Probably the most common form is that consisting of a circular case containing a system of gears usually planetary or bevel, which when the case is gripped by a brake band, transmit to the propeller shaft motion opposite to that of the engine shaft. For the forward motion, the brake band is released, and by a clutch of some sort the two shafts are locked together, the case turning as part of a rigid shaft.

Two views of the Baldridge reverse gear.



The Gies gear and its chain and gear transmission.



The Sterling gear is of the planetary type with expanding ring clutch.

In another class the case remains fixed, usually incorporated as a part of the engine frame and contains a countershaft and system of gears, but is unlike the positive type first mentioned, in that they do not slide in and out of mesh. They remain constantly engaged and are gripped or released by a system of clutches. In reverse gears of this class the gears and clutches are in the same compartment and are, of course, run in oil.

There are variations of these types in which a combination of chain and gears is used, or in which the motion is transmitted by means of cranks or eccentrics. The clutches, too, vary, but resolve themselves into three distinct types, viz, the expanding ring, the cone, and the multiple disc, but as the principal makes are to be taken up later, we shall not go into further elaboration here. Suffice it to say that there are a few fundamentals, which, in this country at last, are generally accepted as good in reverse gear practice.

In the first place when running ahead, the propeller shaft should be locked rigidly to the engine shaft, except, of course, in rare cases where the former is geared up, as to transfer the forward motion through gears would cause unnecessary friction, wear and noise. The gears should be enclosed so that they may be run in oil or grease and should be continually in mesh. Upon this latter point American manufacturers are almost unanimous.

The adjustments of the brakes and clutches should be simple and accessible, as these parts need frequent taking up for wear.

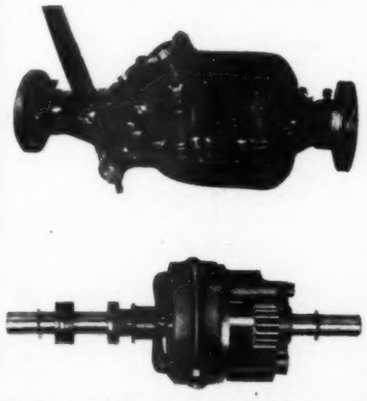
Baldridge.

The gear manufactured by the Smith and Baldridge Machine Company is of the planetary type, but somewhat different from other gears of this class. Instead of being made with two sections of the main shaft meeting inside the case, this gear has but one shaft, which is unbroken and extends clear through the entire case. The gear cage is coupled direct to the engine shaft and revolves as a part of it. A double expanding clutch of steel and a brass brake band operate on a separate drum. The former is engaged by means of fingers and a sliding cone and the latter by means of a coarse screw.

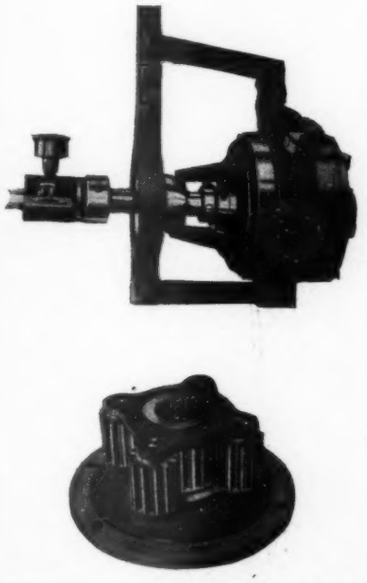
The drum either revolves with the gear cage or in the opposite direction at two-thirds the speed, according to whether the clutch or brake is engaged. The housing is divided at the shaft center and is packed with non-fluid oil in which the whole mechanism revolves.

Gies.

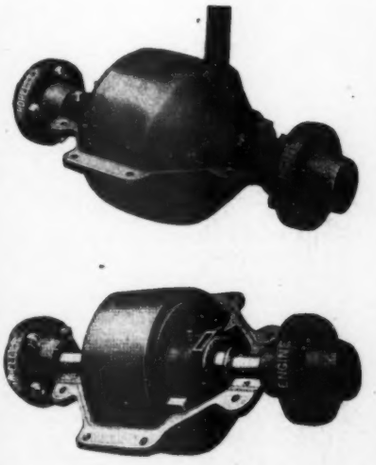
The Gies reverse gear is a combination of both chain and gears, as shown in the illustration, and its operation is as follows: When the handle is thrown forward, the cone engages the expanding fingers thus expanding the clutch which is keyed to the propeller shaft, and locking the propeller shaft to the engine shaft. The gear case then revolves as an auxiliary flywheel and the gear mechanism is not in operation. When the handle is thrown aft the wedge engages the set screw of the horizontal lever, raising the long arm and lowering the shorter one, which clamps the friction band around the flanged portion of the cover, and holds the gear case stationary. The mechanism then operates as follows: The drive is reversed from the engine shaft gear shown above, to the combined countershaft gear and sprocket shown below and this reverse drive is transmitted by the chain to the propeller shaft on the right.



All the revolving parts of the Gray gear are inclosed.



The Paragon uses the multiple disc type of clutch.



The revolving drum of the Harthan gear is entirely inclosed.

Paragon.

The Paragon reverse gear, manufactured by the Evans Stamping anl Plating Company, and which is supplied "built-in" on the motors of the Lackawanna Manufacturing Company, is of the planetary type, employing a multiple disc friction clutch. On the forward motion the lever engages the fingers by means of a sliding cone. These fingers in turn compress the friction discs and the whole gear revolves as a solid coupling. The reverse motion is obtained by throwing the lever back and this motion clamps the brake band, which prevents the case from turning. The power is then transmitted through the gears. When the lever is in a vertical position the gear is neutral, the friction discs and brake band both being disengaged.

Harthan.

The Harthan reverse clutch, manufactured by the MacFarland Foundry and Machine Company, is of the planetary type, and is equipped with an expanding ring clutch. The mechanism is entirely enclosed in a case and no moving parts are exposed, with the exception of the couplings at either end.

On the forward motion the clutch rigidly couples the two shafts and the drum within the casing turns as part of a rigid shaft. For the reverse motion, the drum is held rigidly with the casing and the motion is transmitted through four pinions working between a central gear and an internal gear, which is part of the drum. Besides the go-ahead and reverse positions, the clutch has a neutral point, at which the engine may be allowed to run while the propeller shaft remains stationary.

Holliday.

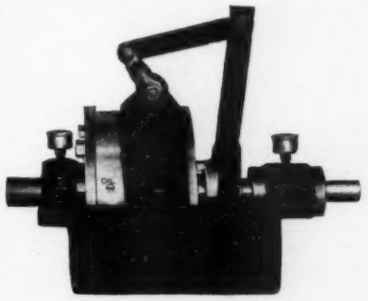
The Holliday reverse gear is of the planetary type, there being six steel bronze-bushed spur gears always in mesh, but in use only when the propeller is reversed. The clutch is of the expanding ring type.

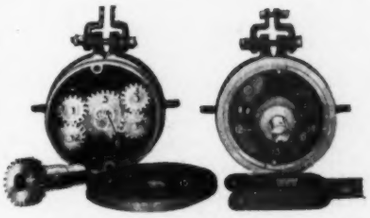
When the shifting lever is in the vertical position, the clutch is neutral, the propeller shaft being disconnected from the engine shaft, allowing the latter to run free. When the shifting lever is thrown forward, wedges engage the expanding levers which expands the internal friction ring. In this position, the whole drum turns with the shaft. The gears are in mesh, but do not move relatively. When the shifting lever is thrown back, the yoke shown at the top of the lower illustration tightens the external friction ring, which arrests the clutch. The propeller shaft is telescoped into the shaft, and extends to the forward bearing of the frame, connection being formed by roller bearings extending the whole length. This makes the two shafts rigid and prevents their getting out of alignment.

Johnson.

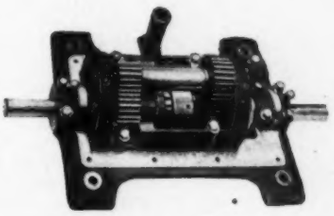
The Johnson marine reverse gear, manufactured by the Carlisle Johnson Machine Company, is of the type employing the countershaft to transmit the reverse motion. It consists of a single and a double Johnson clutch, incorporated in a stationary case. The double clutch is keyed to the propeller shaft of the gear and on throwing the lever forward, expands on the inner end into a bronze friction cup, which is a part of the engine shaft. In this manner by engaging this cut-off coupling clutch the shafts are united and transmit the forward motion with no gears running, as the two gears shown in the illustration, surround clutches which are disengaged at this time.

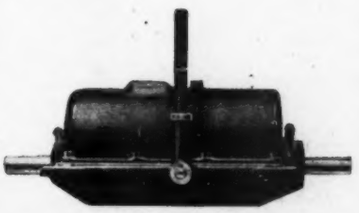
When the inner end of the double clutch is thrown out of engagement the engine shaft with the bronze cup attached to it runs free with the motor, while the propeller shaft stands still. To reverse the propeller shaft the lever is thrown backward and by so doing the two clutches, which expand into the two lower gears, shown in the illustration, are both thrown into engagement at the same time. That is, the single clutch which is keyed to the engine shaft, and the outer end of the double clutch which is keyed to the propeller shaft



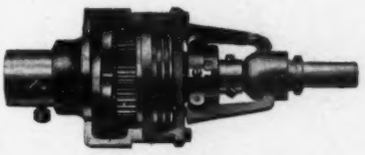


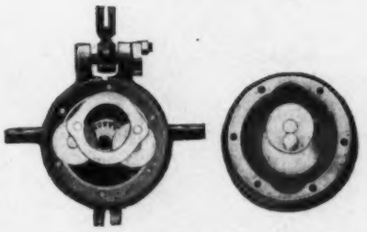
The Holliday gear with views of the friction and transmission compartments.





A countershaft is used in the Johnson gear.





Joe's Reverse Gear, showing friction discs and eccentric transmission.

are both engaged. The two gears which surround these two clutches are always in mesh with those on the countershaft through which the reverse motion, at two-thirds of the forward speed, is obtained. The entire mechanism runs in an oil bath and there is a ball thrust bearing at the propeller end of the gear. In the central position of the lever the clutches are all disengaged and the gears and propeller shaft remain idle while the engine is allowed to run free.

Joe's.

Joe's Improved Marine Reverse Gear is somewhat different from any other gear on the market. In its construction there are but three gears, none of which revolve faster than the motor speed. Motion is transmitted to the gears through a powerful eccentric in such a manner as to bring a uniform load upon each of them. The eccentric and gearing are inclosed in a tight compartment containing grease and which is entirely separate from the compartment containing the clutch, as shown in the upper illustration.

When the lever is upright, the motor is allowed to run idle; when it is pushed forward the engine and propeller shafts are locked together and rotate as one. When it is pulled back the shafts are released and the reverse motion set up by means of the eccentric and gearing. The former, which is shown to the right, enters the bronze eccentric ring shown in the cut to the left, which connects with the gears by means of crank pins. The rotary motion of the eccentric oscillates the eccentric ring, thereby rotating the two driving gears, which mesh into the central or propeller gear, rotating it in the reverse direction at two-thirds the speed of the motor. The eccentric ring automatically distributes the power equally between the two driving gears. The bearing head, separating the gear and friction chambers, as shown in the upper illustration, receives the thrust of the friction discs which are keyed alternately to the propeller sleeve and the friction chamber and are forced into holding contact by the fingers and cone operated by the handle. The brake band loosely encircles the case, its only function being to clamp and hold the case when reversing.

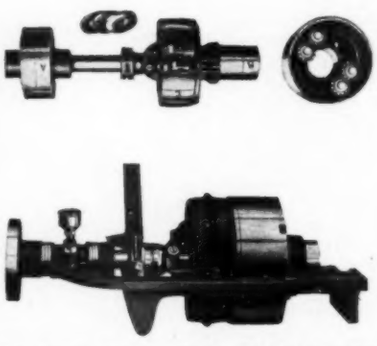
Ferro.

The gear manufactured by the Ferro Machine and Foundry Company, which may be had incorporated with their engine, is of the planetary type, using the internal expanding type of clutch. By pushing the hand lever to the forward position, the internal clutch grips the drum or cover of the gear case, thus locking it as a part of the engine shaft. By moving the lever backward the neutral position is first reached, where neither clutch nor brake band is engaged. Throwing it still farther in the reverse position causes the tightening of the brake band on the drum and the motions is transmitted to the pinions, which in turn transmit it to the propeller shaft in the opposite direction at three-quarters the engine speed. The internal expanding clutch is operated from the lever by means of a conical sliding sleeve. The pinions run in a bath of light grease to reduce friction and eliminate noise and vibration.

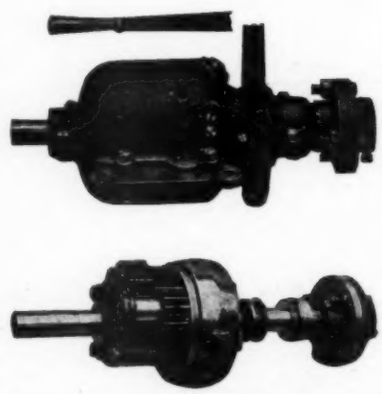
Detroit.

This gear is of the planetary type. In contains five plain spur gears which are always in mesh, but which are in operation only on the reverse or when the control lever is in the neutral position. It will be seen from the illustration that all bearings, gears and working parts are entirely closed in a stationary oil-tight casing where they run in a bath of oil. Only two of the gears revolve as fast as the engine shaft and the speed of the propeller in reversing is reduced by 20 per cent.

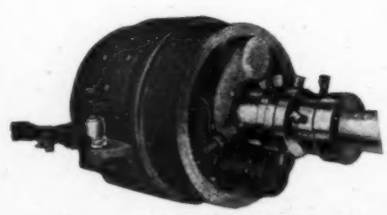
The clutch is of the internal expanding type. It is actuated by a single expander which extends the full width of the clutch ring. When necessary this may be quickly adjusted without removing case, by means of a special wrench furnished for the purpose. The reverse bands are made of manganese bronze and are self-centering, the drum is of cast iron. The reverse band while enclosed is provided with an external adjustment and can be regulated at any time even while the engine is running. A grooved ball thrust bearing is used with this gear and the other bearings are of babbitt.



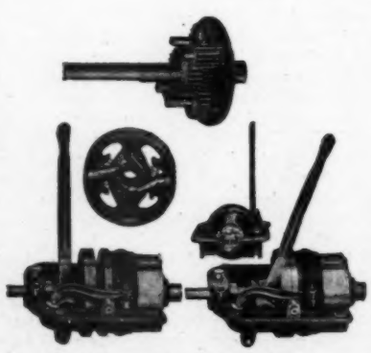
The Ferro reverse gear is of the planetary type, with expanding clutch.



The mechanism of the Detroit gear is inclosed and runs in a bath of oil.



The gear manufactured by the Buffalo Gasoline Motor Company.



Several views of The Michigan Wheel Co.'s gear.

Sterling.

The reverse gear used by the Sterling Engine Company is one designed and manufactured by themselves. It is of a planetary type, having three sets of pinions driven by a main gear. The drive gear which is very large in diameter, supports the drum which is bronze bushed, the gear hub forming the bearing. In the after end of the gear is a bronze bushing to which the driven shaft is journaled. The driven gear, which is keyed and shrunk to the driven shaft is of steel, slightly larger than the drive gear, causing the reverse motion to be somewhat slower than that of the forward drive. The clutch, which is of the expanding type, is secured to the driven shaft by means of keys and set screws. This shaft extends beyond the end of the lower base and has the coupling attached.

The control of the gear is by means of a single lever, which, when placed in the forward position engages the clutch and locks the whole gear for the forward motion. When it is pulled slightly to the rear, it disengages the clutch, allowing the engine to run free and, when thrown to the rear, it compresses the band on the drum by means of the lever shown in the lower illustration, thus locking the pinion shaft and causing the driven shaft to revolve in the opposite direction.

Gray.

The Gray clutch is of the planetary type, containing one long, solid, intermediate gear and three other spur gears which are always in mesh and run in a bath of oil, making their operation noiseless.

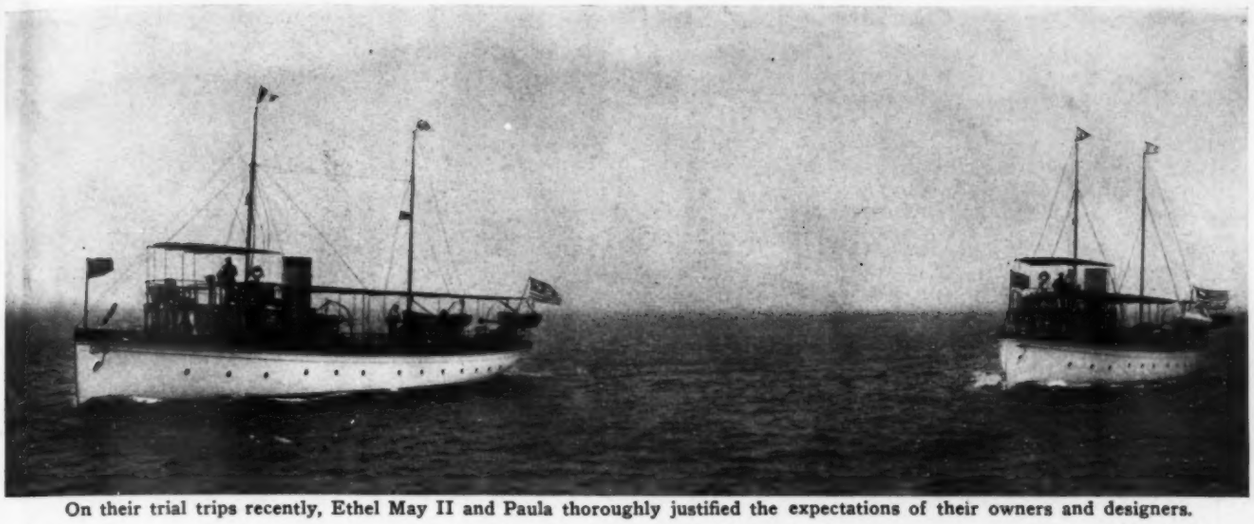
The clutch is of the internal expanding type and the friction band is double, giving a perfect contact at all points of its circumference. The double expander is hung on a yoke which allows the expanding band to move freely independent of the shaft. The external friction band or brake band is of phosphor bronze with unusually large surface to prevent slipping.

Buffalo.

The reverse gear manufactured by the Buffalo Gasoline Motor Company is of the planetary type, employing an internal expanding clutch. In the go-ahead position, the internal clutch is expanded by means of the levers, shown in the illustration, and the entire drum and contents revolve as a solid shaft. For the reverse motion, the drum contains six heavy spur gears through which motion in the opposite direction is imparted to the propeller shaft. The gears are always in mesh but are only in action on the back-up. Between the ahead and reverse positions, there is a neutral point at which the two shafts are disengaged, allowing the engine to run free. The brake band, which is tightened by a heavy worm screw, holds the drum from revolving on the reverse motion. The band is lined with babbitt, giving an easy slipping action. Both the brake band for the reverse and the sliding bobbin for the go-ahead are controlled by one motion of the lever which may be located in any point of the boat.

Michigan.

The reverse gear manufactured by the Michigan Wheel Company is of the planetary type, the gears being engaged only when running in the reverse direction. When transmitting the forward motion the shafts are locked to each other by an internal expanding clutch and the drum turns as a coupling. When on the reverse the drum is gripped by a brake band and the motion is transmitted through the spur gears. The gears are always in mesh, although only used in the reverse, and run in a bath of oil. The drum, as well as the gears, is bronze-bushed. A self-locking device, which takes hold automatically in case the power is too great, prevents slipping and is supplied on several of the company's models.



On their trial trips recently, Ethel May II and Paula thoroughly justified the expectations of their owners and designers.

A Pair of 98-Foot Cruisers.

THE accompanying illustrations give an excellent idea of the 98-foot twin-screw motor yachts Ethel May II and Paula, recently designed and built by the ELCO Company, of Bayonne, N. J., for Messrs. Albert E. Smith and J. Stewart Blackton, of New York.

The boats were built from the same designs and models, alike in every respect, with the exception that Ethel May II was subsequently equipped with bulwarks, while Paula was left, as originally designed, without them. The interior accommodations are identical.

In order to come within the Erie Canal and Lake Champlain clearances the overall length was made 98 feet, the beam 16 feet and the draft 4 feet 6 inches. The total overall height from waterline to top of cabin house is well within the clearances beneath the canal bridges enabling the boats to make the trip inside from New York to the St. Lawrence River and the Great Lakes.

In their construction maximum strength has been provided for. Oak has been used for the keel and frame and yellow pine for the keelson, engine beds, bilge stringers and clamps. All the hull fastenings are of copper and bronze, the boats are divided into five compartments by four water-tight bulkheads. The forward or collision bulkhead is of wood in two thicknesses. The engine room bulkheads are of steel and the after bulkhead is constructed the same as the forward one. The decks are of white pine and the deck houses inside and out, skylights and companionways are finished in selected mahogany.

The owner's quarters are located aft of the engine room and extend the full width of the boat by 11 feet fore and aft. In these quarters are provided two single brass bedsteads, two chiffoniers, two large hanging lockers and on the port side forward a large tiled bathroom. The interior finish of the owner's quarters of Ethel May II is in bird's eye maple as shown in the illustration, and the finish of the same quarters in Paula is of white mahogany. The main saloon aft of the owner's quarters is finished in dark mahogany with furniture to match consisting of desk, bookcase, mantlepiece with electric stove and mahogany alcoves and lockers.

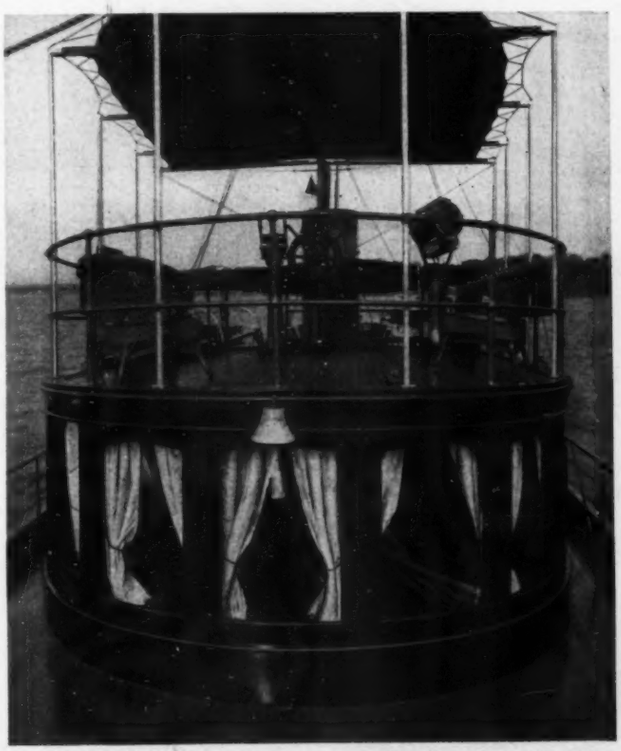
A rubber tiled passageway leads aft to three single state-rooms provided with single berths, dressers, bureaus, etc. The woodwork in these compartments is of mahogany with white enameled paneling.

A lavatory for the guests is located adjacent to the single state-rooms.

The dining saloon is forward on deck and is unusually spacious, which will be seen from the illustrations, its large round table comfortably seating a company of ten or twelve persons. The windows in this compartment drop into pockets affording excellent ventilation and permitting a view of the surrounding waters when seated at the table. The galley is adjacent to the dining room but below deck. It is 5 feet fore and aft and extends the full width of the boat. It contains the usual fixtures and adjacent to it is an icebox with a capacity of 400 pounds of ice. The crew's quarters are forward under the dining room and in the forepeak, an consist of a single state-room for the captain and four pipe berths for the crew.

The power equipment of each boat consists of a pair of 75 h.p., six cylinder Standard motors with the exhaust carried out to the sides of the boat, the stack being used as a ventilator for the engine room. This compartment is of unusual size and contains a berth for the engineer and an auxiliary electric lighting plant of 4 K. W. capacity. It is operated by an 8 h.p. gasoline motor which is also directly connected with the bilge pump, fire pump and air compressor.

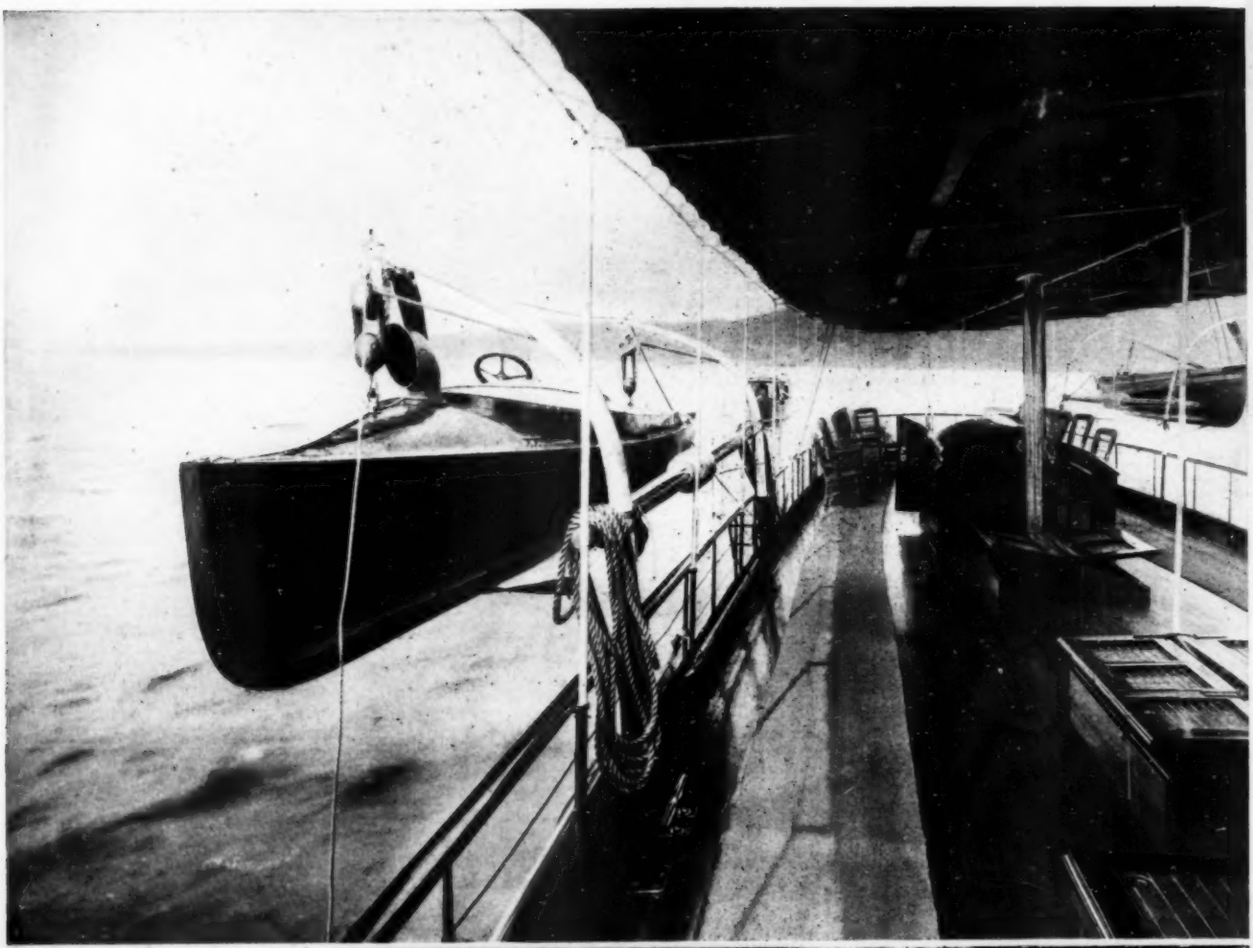
The boats are both equipped for hot and cold fresh water flowing by gravity to the bathtub and all basins, the water being carried in galvanized tanks of 600 gallons capacity under the cabin floor and pumped by electricity to an auxiliary tank on the cabin roof. The bathroom is further equipped with an electric pump for emptying the tub and another connection to a sea cock so that by simply pressing an electric button salt water may be obtained if desired.



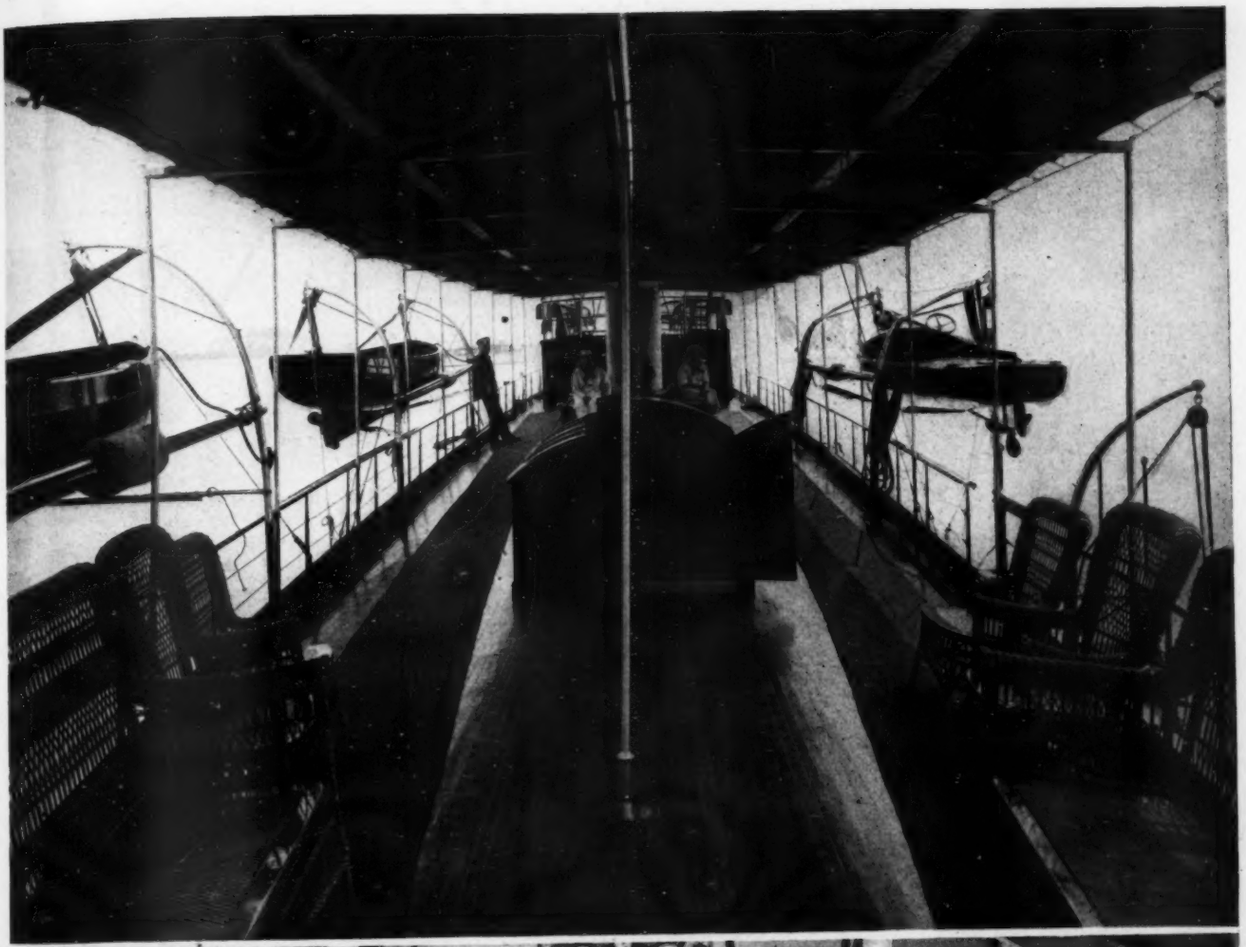
The bridge deck alone accommodates quite a number of people.

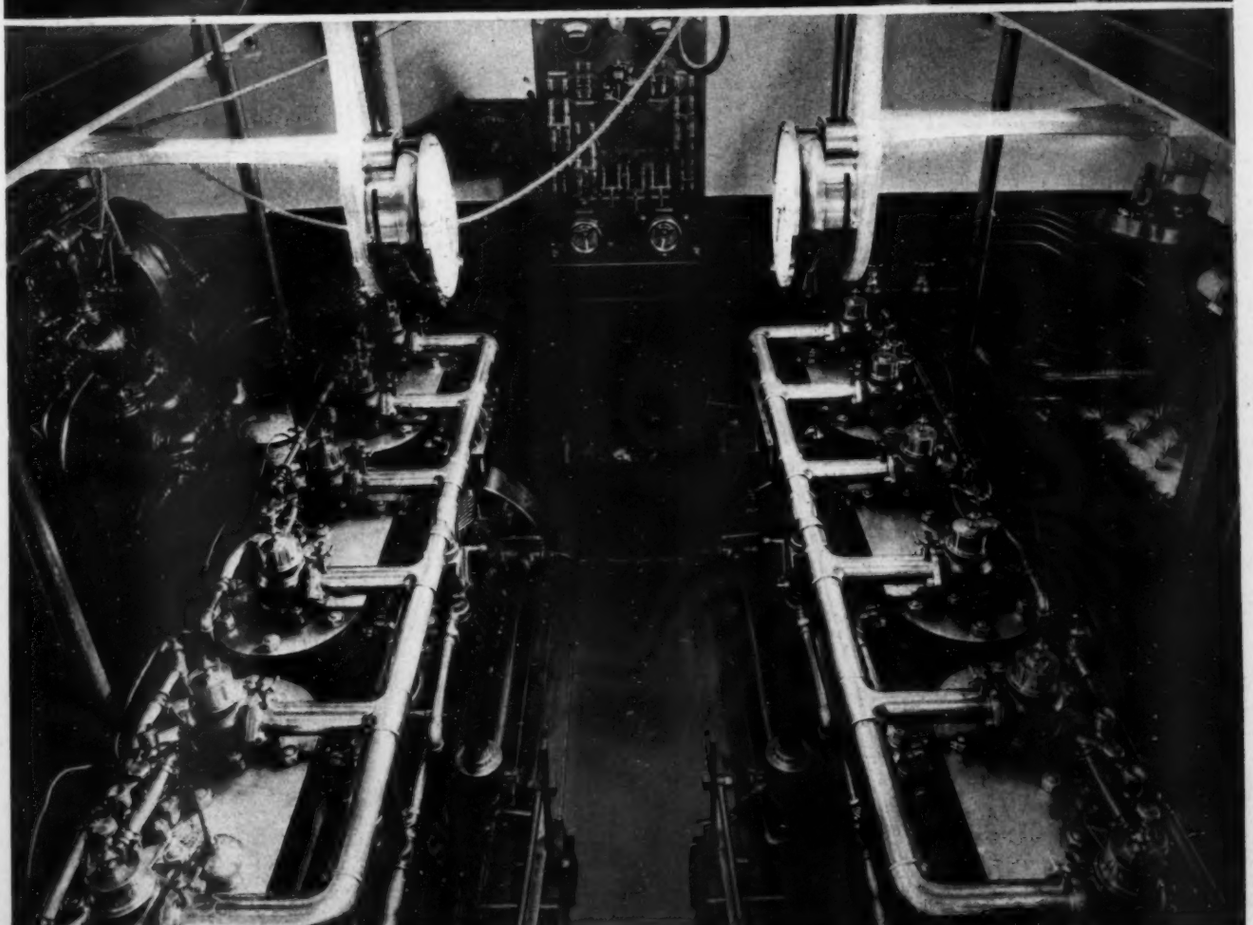
The small boat equipments of Paula and Ethel May II are interesting. Each carries a 14-foot rowing dinghy of lap strake construction, on davits aft, on the port side. Forward on the same side is carried a power tender of 16 feet equipped with a 5 h.p., two cycle, two cylinder motor. On the starboard side amidship each of the boats carries a 20-foot ELCO gasoline express tender capable of a speed of 24.3 miles per hour. These boats are constructed throughout of selected mahogany, the construction being light but strong to withstand hoisting to the davits. The power equipment of each is a 40 h.p., four cylinder motor.

Ethel May II and Paula with their deck space of 1,260 sq. ft., and their accommodations below offer exceptional opportunities for entertaining large companies. The bridge decks alone, which are above the cabin houses and from which point the boats are controlled by marine telegraphs, are large enough to accommodate quite a number of people. On their trial trips recently the boats performed very creditably, thoroughly justifying the expectations of their owners and builders.

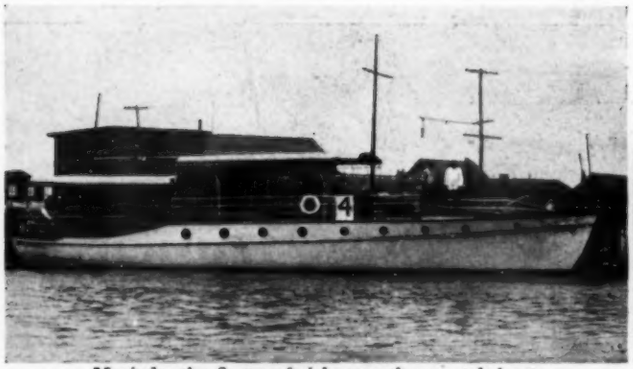


Above; the after deck showing the 20-foot ELCO express tender, with which both boats have been equipped. Below; the owner's quarters of Ethel May II, showing the finish in bird's-eye maple.





Above; the after deck of Ethel May II, looking forward. Below; the engine room, showing the two 75 horse power, six cylinder Standards and the auxiliary generating set on the left.



Mariada, the first to finish, was the scratch boat.

Isabella II flies the pennant of the Ventnor Yacht Club.

Ocean Race of the Yachtsmen's Club.

How Ilys Won the Second Deep Sea Race Held This Year by the Philadelphia Club. Four Motor Boats and Two Auxiliaries Competed in the 135-Mile Contest.

By E. H. Rosenberger.

THE Yachtsmen's Club, of Philadelphia, added more laurels to its wreath on July 8 and 9, as a promotor of ocean racing. In the success of the races the club divides honors with the Sea Side Yacht Club, of Atlantic City, which contributed much toward it.

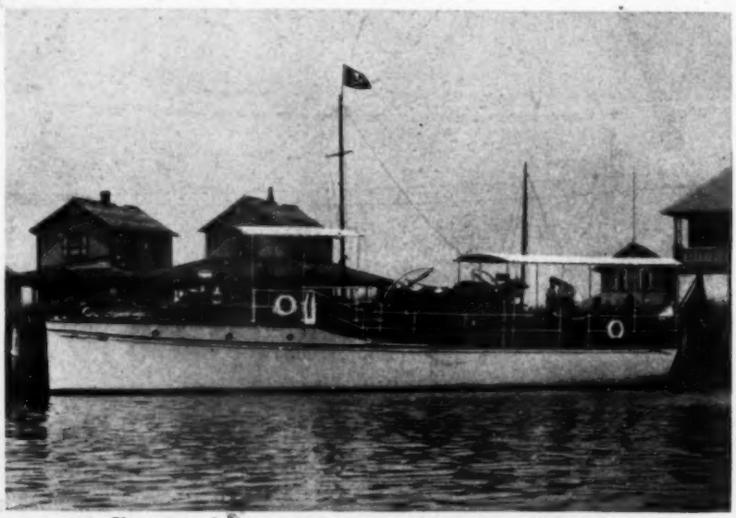
With members of the Yachtsmen's Club long distance, deep set racing is accepted as the coming sport for seaworthy power boats, and the races run this season will furnish an abundance of material for thought and discussion during the winter months, when plans will be made for next year's events of this class. The advisability of scheduling all night runs, the grouping of the 40 or 50-footer in the same class as the boat measuring 90 or 100 feet over all, and other features, have already become subjects of discussion, with a possibility of making changes in the rules, if not a probability.

The course was 135½ nautical miles in length. Best elapsed time was made by Mariada, in 15hrs. 22min. 45sec., but the best corrected time was by Ilys, finishing in 15hrs. 13min. 24sec. The start was made opposite Young's old pier at Atlantic City, going due east 6 miles to the Whistling Buoy off Brigantine Shoals, thence S.S.W. ¾W., 60 miles; to Fenwick Shoal Lightship; N.N.W. ¼W. 24½ miles to Overfalls Lightship and thence 45 miles to starting point.

Six boats were started, crossing the line at 12:20 P.M. on July 8. Two were of the auxiliary type. In the power boat class there were four, all of which crossed the line at 4:05 P.M. the same day.

The boats entering the race of the power boat class included Mariada, owned by Robert and Richard Moore, of Bridgeton, New Jersey. She made her initial bow as an ocean racer and made a magnificent run. Her owners were disappointed at not having been awarded the race and believe they could have won had they driven her engines a trifle harder. She measures 45 feet 3 inches at load waterline, has 12 feet beam and an average draft of 20½ inches. She carries a 6 cylinder, 4 cycle Sterling engine of 60 horsepower. The other boats entered were Ilys, one of the Havana racers, owned by Commodore J. G. N. Whitaker, of the Yachtsmen's Club; Isabella II, owned by Joseph Thompson, flying the pennant of the Ventnor Yacht Club; and Lady Maud, owned by Dr. C. S. Street, of the Yachtsmen's Club.

The two auxiliary boats in the race were Quakeress, owned by A. D. Edson, and Mira, by R. L. Young, both flying the pennants of the Yachtsmen's Club.



Ilys, the winner, veteran of the Bermuda and Havana races.

The Regatta Committee were as follows: Richard L. Young, Dr. C. S. Street, Capt. B. D. Reese, Thomas D. Bowes and M. E. Brigham. The judges were Frank Vanderhershen, Col. L. T. Brown, Barclay Bullock, assisted by C. Claude Scull. The measurements of the power boats resulted in the following ratings and time allowances:

Boat	Rating	Allowance Scratch
Mariada	51.09	
Isabella	49.72	0.28.39
Ilys	44.95	1.41.16
Lady Maud	31.50	

The first gun was fired at exactly four o'clock. The four boats were well in position, and eager for the start. At 4.05 the second gun was fired and almost immediately the four boats shot across the line.

Leaving the start the boats made for the Whistling Buoy, Isabella leading, followed by Ilys, Lady Maud and Mariada. In the run to the buoy Mariada gained rapidly. By the time the first six miles were reeled off, Mariada led by several lengths.

Mariada's log shows that she passed Whistling Buoy at 4:48 P.M., N. E. End at 7:52 P.M., Five Fathom Lightship at 9:05 P.M., Fenwick Shoal Lightship at 11:39 P.M., Overfalls Lightship at 2:45 A.M., finishing at 7:27:45 A.M. off Young's Pier.

Meanwhile the judges had made calculations when to look for the first returning boat. In this Mariada almost upset their calculations. They had just begun to scan the horizon, on reaching the finish line after their early breakfast, when Mariada poked her nose through the mist that hung over the horizon. Her coming was soon heralded to the early ones on the boardwalk. Ploughing through the sea at a steady clip she presented a pretty sight as she neared the finish line. She was given an ovation as she crossed, and glasses then scaned the horizon for the next comer, anxious to learn whether they could overcome the time allowance.

Isabella was next in and Ilys, the Havana racer, came a few minutes later. Lady Maud did not finish within the prescribed time limit. The following is the official time of the several boats.

Motor Boat Class.

Boat	Finish	Elapsed Mean Time H. M. S.	Corrected Mean Time H. M. S.
Illys	8.59.40 A.M.	16 54 40	15 13 24
Mariada	7.27.45 A.M.	15 22 45	15 22 45
Isabella	8.26.50 A.M.	16 21 50	15 53 11
Lady Maud was not timed.			

Auxiliary Class.

Boats	Finish	Elapsed Mean Time H. M. S.	Corrected Mean Time H. M. S.
Quakeress	11.49 A.M.	23 29 40	23 29 40
Mira	3.25 P.M.	27 49 40	25 49 40

The prizes, handsome silver cups, were awarded in the evening of the finishing days of the races. There were three silver cups, the first being awarded to Commodore Whitaker, owner of Ilys; and a second to Robert and Richard Moore, owners of the Mariada. Another cup was awarded to the owner of the Quakeress, the auxiliary.

The Advance of Neptune's Forces.

Photograph, Copyright, 1910, by Edwin Levick.

MOTOR BOATING SURF SERIES, No. 6.

New Motor Boat Designs.

A 56-Foot Western Cruiser.

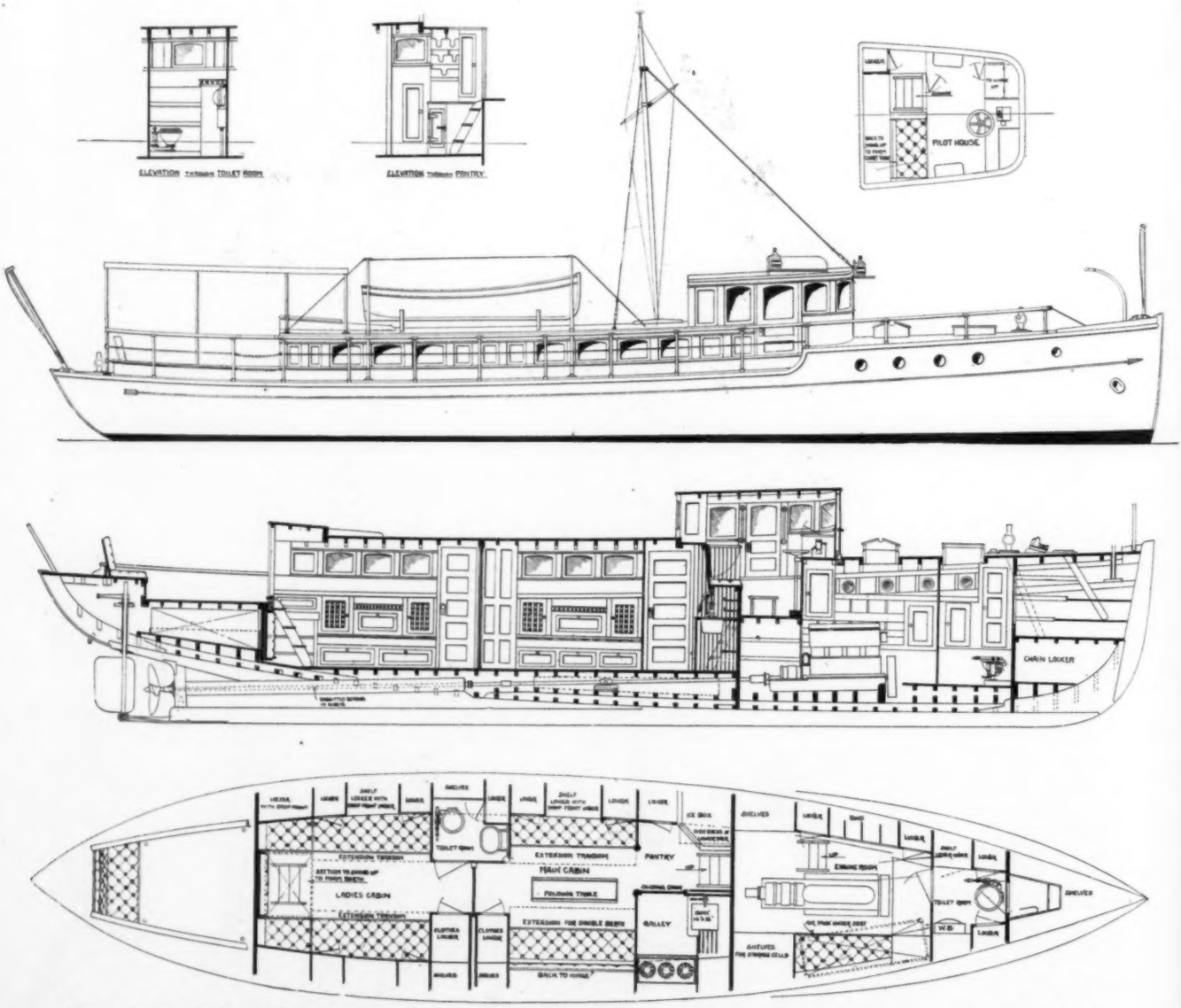
MESSRS. LEE & BRINTON, of Seattle, Wash., have recently completed the design here shown, for a cruiser, to be constructed this fall for a yachtsman of Vancouver, B. C. She is 56 feet over all with load waterline length of 52 feet, beam of 11 feet 6 inches and draft of 3 feet 10 inches. A raised deck extends from the stem aft to the pilot house and there is a trunk cabin from this point to the cockpit. The engine room is situated forward of the pilot house in which controls will be located convenient for the steersman. Steps lead from the pilot house down to the engine room which will contain a 4 cylinder Standard engine of 30-35 h.p. Forward of the engine room there is a toilet room in addition to the one adjoining the after quarters. Just aft the pilot house and connected with it as well as with the cabins aft are located the galley and pantry on either side of the companionway. The latter, to starboard, utilizes the space beneath the seat in the pilot house for the sink, and the corresponding space to port is occupied by an ice-chest, dish-racks, etc. There are two cabins with sleeping accommodations for three persons in each, and the forward one will be used for a dining saloon. The interior finish throughout will be in mahogany and the exterior of the house and cabin trunk will be of teak. The boat will be equipped with her own electric lighting plant.

The top of the cabin trunk, as well as the space on either side provides ample deckroom, together with the cockpit aft. The latter is quite shallow, bringing its floor well above the water-line, and is provided with four scuppers, making it self-bailing.

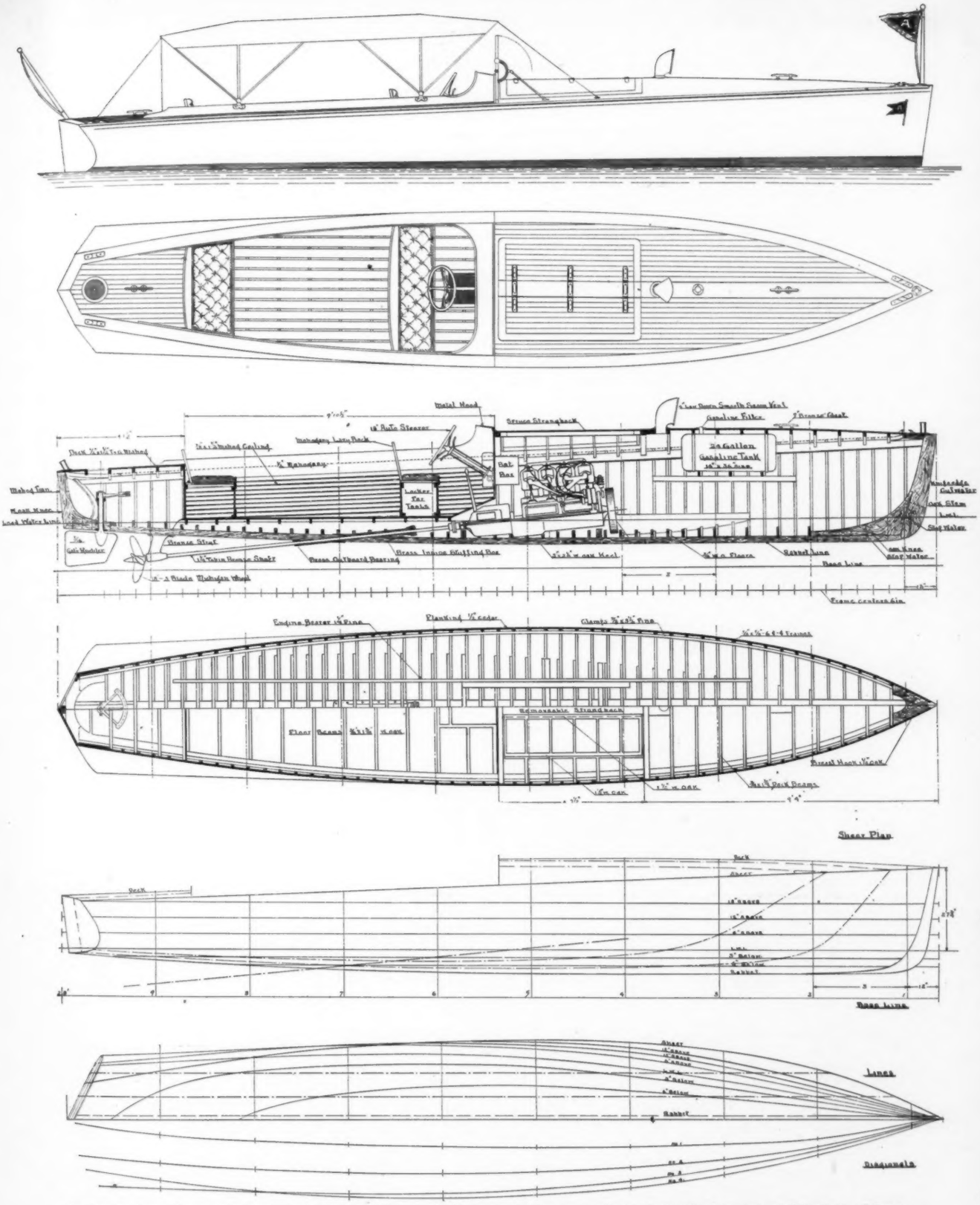
The proportions of the boat, as well as the distribution of her weights, should make for seaworthiness. She has great freeboard forward, with a considerable length of clear deck. Her stern is of the canoe type, and the lines of her under-body are symmetrical fore and aft. The motor is installed considerably forward of amidships, and the gasoline tank is installed under the cockpit floor. A signal mast is shipped just aft the pilot house, and a tender will be carried on davits over the cabin trunk amidships.

A 28-Foot Runabout.

THE design of the trim 28-footer here shown is from the board of W. E. Anderson, of Albuquerque. The general dimensions of the boat are 28 feet over all, length on waterline, 26 feet 6 inches; beam, 5 feet 1 inch; and extreme draft, 2 feet. The lines are in accordance with modern practice, with straight sheer, V-transom stern and with a slight rake to both stem and stern posts. Specifications call for white cedar planking and white oak keel, frames, etc. The planking is ½ in. in thickness, and the frames are ⅝ in. x ⅝ in. and are spaced on 6 in. centers. The deck beams are ¾ in. x 1¾ in. and are spaced on 10 in. centers. The engine bearers, which extend to within a short distance from the bow and the stern, and also the clamps, are of pine, the former 1¼ in. in thickness, and the latter ⅞ x 3½ in. All bright work, such as the coaming, plankshеer, decks and the interior of the cockpit are to be of mahogany. The power plant specified is a 25 h.p. Loew motor with a one-man control, and the propeller is an 18 inch auto speed wheel.

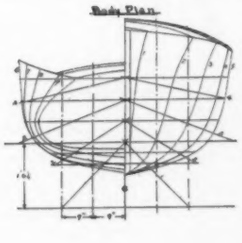


The 56-footer, designed by Messrs. Lee & Brinton, of Seattle, reflects the healthy Western tendency toward rational design.



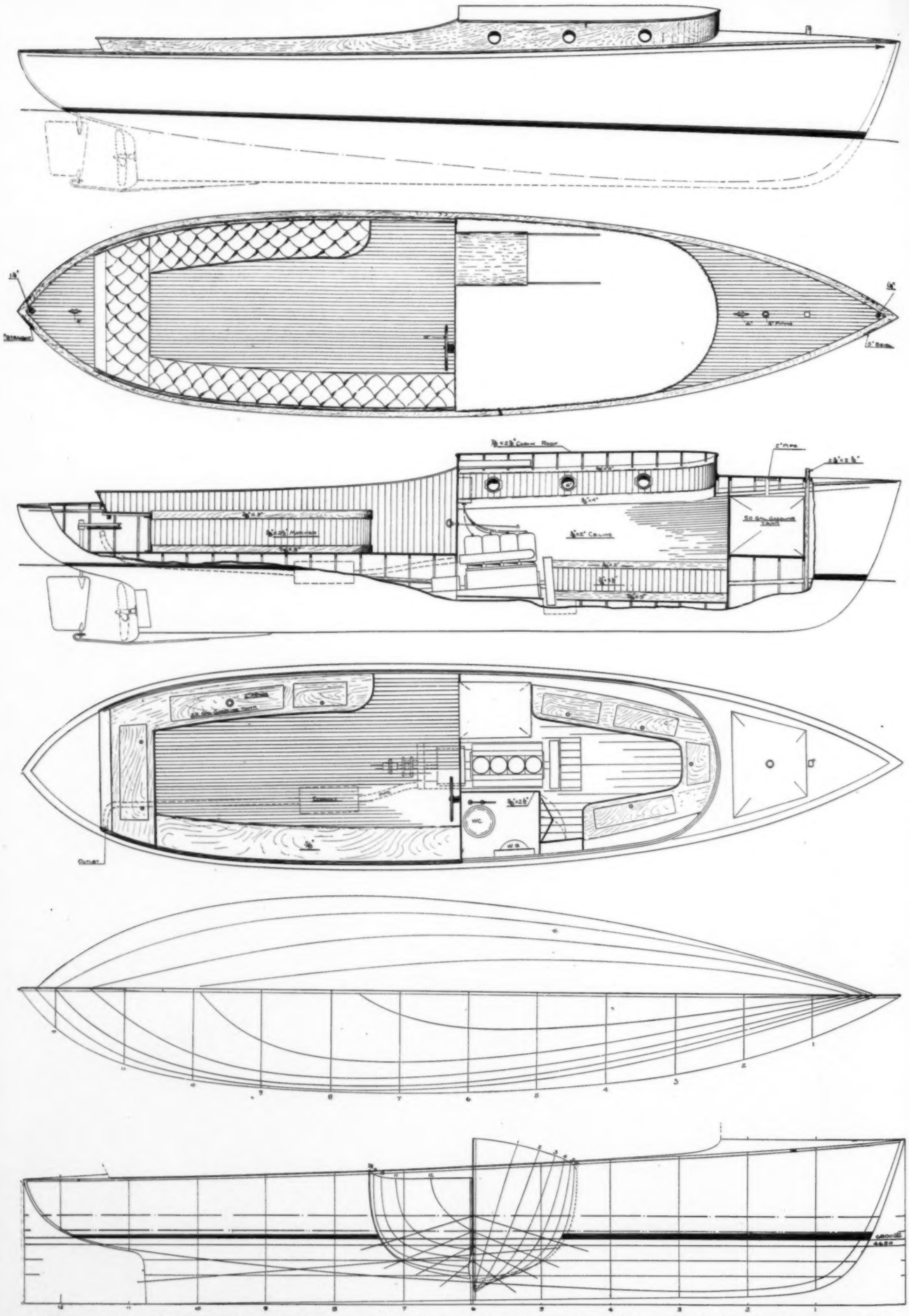
In his design of a 28-footer, Mr. Anderson has blended harmoniously most of the desirable features of this type of boat.

With this equipment a speed of 16 to 18 miles per hour is expected under favorable conditions. The motor is installed a little forward of amidships and is accessible through a folding hatch of the same material as, and flushed with, the deck, which leaves the line of the latter unbroken from the stem to the cockpit. A folding windshield of the automobile type will be placed at the forward end of the cockpit, and a folding canopy top will add further

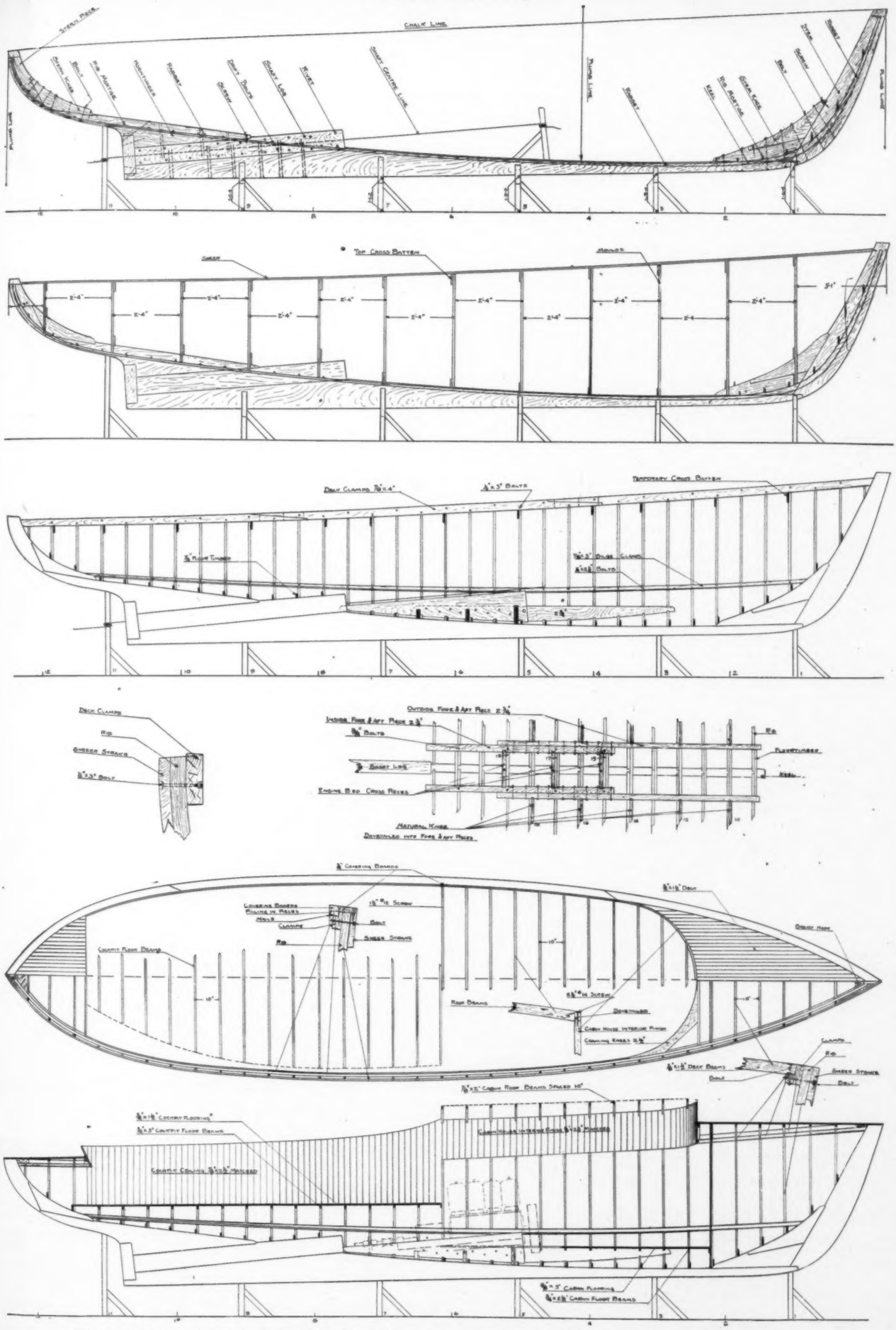


to the trim appearance. Save for two transverse seats, one at the after end and one forward for the operator, the cockpit has been kept clear for the use of chairs.

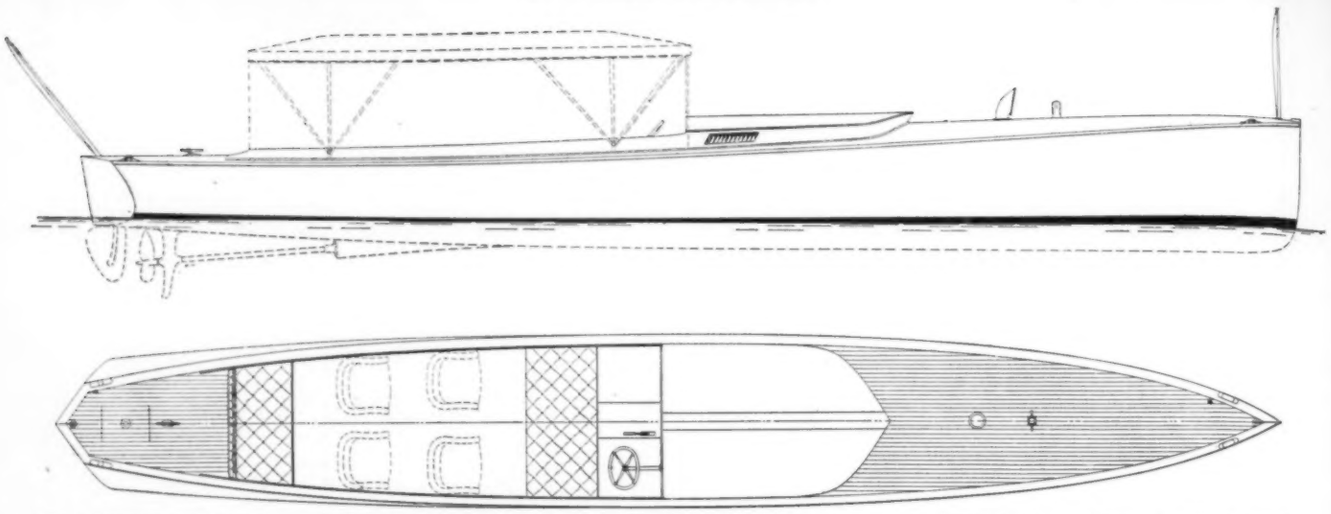
The proportions of the boat throughout are harmonious. There is a slight rake of the bow and also to the Normand V stern, and from the lines of her under-body it seems probable that her estimated speed of 18 miles per hour will be attained.



The outboard and inboard plans and elevations and the lines of the 30-foot hunting cabin cruiser designed by the Desmond Co.



The complete construction plans of the Desmond 30-footer, showing the different stages of her development.



Mr. Chauncey's Olcott's 35-footer, designed and built by the Matthews Boat Company, is equipped with a 65-horse Sterling motor.

30-Foot Hunting Cabin Cruiser.

THE complete set of plans which appear on the two preceding pages are of a thirty-foot hunting cabin cruiser designed by The Desmond Co., of Elizabeth, N. J. Ten boats are building or have been built to this design, seven in this country, and one each in Spain, England and Australia.

The lines show a body with easy entrance and considerable dead rise forward, the after body with decreasing draft, terminating in a stern of the canoe type. The sections forward show some flare and those aft are kept well rounded to avoid pounding.

The dimensions are as follows: Length over all, 30 feet; length on the waterline, 27 feet 4 inches; beam, 7 feet 6 inches; draft, 2 feet 8 inches; least freeboard, 2 feet; and cabin head room, 5 feet.

The ribs and framework throughout are of oak, the former being 1⅛ x 1⅛ inch and spaced 10 inches on centers. The planking is of ⅞ inch cedar and the deck of ⅞ inch pine laid in narrow strips.

As the boats were planned for day cruising the cockpit was made large, the cabin being just big enough to accommodate two people. The engine is installed about amidships, just forward of the cabin bulkhead; and there is a toilet room occupying the space just to starboard of it.

The power plants installed in the various boats vary from 10 to 25 horsepower and are of the following makes: Lamb, Doman, Sterling, Buffalo, Erd and Standard. The speeds will range from 10 to 14 miles per hour, the boats having been designed for the latter figure. The fuel tank specified is of 75 gallons capacity. The water tank is of 30 gallons capacity and is placed beneath the cockpit floor.

The very completely worked out set of plans show the boat in all stages of its construction. They offer an exceptional opportunity for study in this respect, as it is seldom that so complete a design is met with.

The Fast 35-Foot Runabout.

THE profile and plan shown herewith are of a fast runabout, building at the plant of the Matthews Boat Company, for Mr. Chauncey Olcott, the well-known actor. The boat, which will be used in summer at Saranac Lake and in Florida waters during the winter, is 35 feet over all by 5 feet beam and draft of 2 feet 4 inches. The construction provides for an oak keel of the strap type in one length; frames of steam-bent white oak continuous from gunwale to gunwale and riveted to keel and floor timber, and planking of ⅝ inch white cedar laid in narrow strakes. The stringers and clamps are of yellow pine and the decks, coaming and interior finish of the cockpit, etc., are of mahogany, finished bright. Seating accommodation is provided for by a divan seat aft, four special canvas chairs, and the operator's seat. A folding table is arranged on one side of the cockpit and an ice-box occupies the space under the divan seat. The boat will be cushioned in brown leather, the floor covering will be in brown linoleum and there will be a khaki Cape-cart top with special folding entrance aft. At the forward end of the cockpit there will be a wind shield of glass and mahogany.

The motor, a 65 h.p., 6 cylinder Sterling is installed under a metal hood and it is entirely controlled from the bulkhead. With this power plant a speed of 22 miles per hour is expected. The gasoline is carried in a copper tank fitted into a sub-tank with drains overboard and the capacity is 40 gallons. The deck equipment consists of lights, searchlight, electric horn, ventilators and the usual fittings,

High Speed Runabout.

A RATHER unusual design, from the board of Carlton Wilby, of Detroit, is shown herewith. This is a proposed fast runabout for a Cleveland yachtsman; and, as can be seen from the drawing, the boat will present a very smart and racy appearance.

The craft is essentially a day boat, as no attempt has been made to provide cruising accommodations. The cabin is intended merely as a shelter, and contains a toilet room and two six foot transoms, there being full head room under the beams.

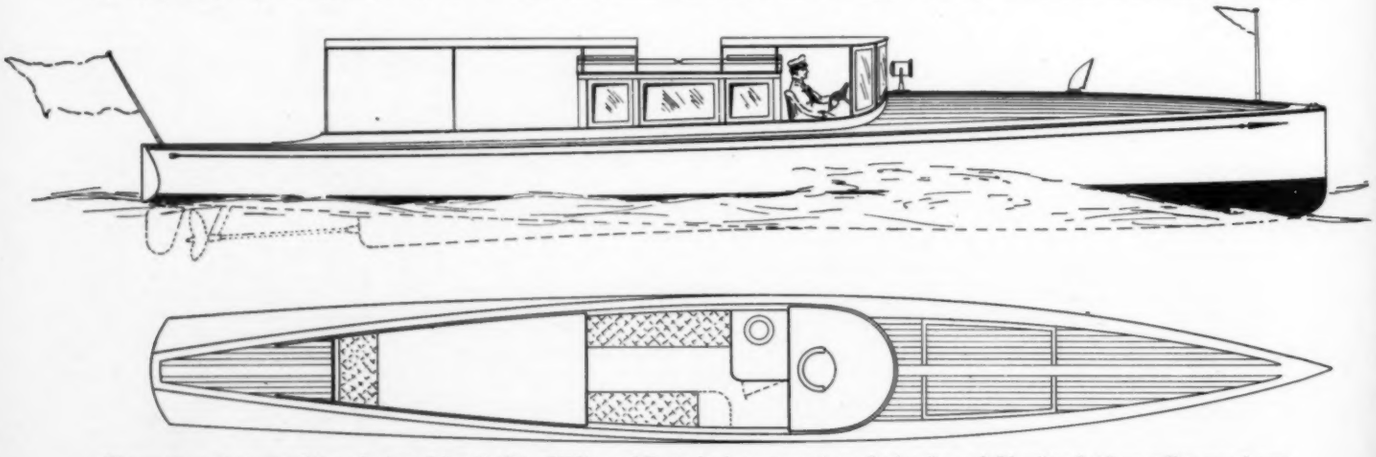
The engine is located under the turtle deck forward, and is accessible by means of doors in the bulkhead as well as hinged covers on deck. A small steering cockpit is shown forward of the cabin, which is protected by a light canopy and glass wind shield. Aft of cabin is a roomy cockpit with seat at after end, the rest of the space being left free for the use of chairs.

With a 60 hp. engine a speed of about 20 miles an hour is expected and in order to accomplish this it will be necessary, of course, to keep the structural weight as low as possible, consistent with necessary strength; and, for the same reason, the beam has been reduced to the minimum advisable for comfort.

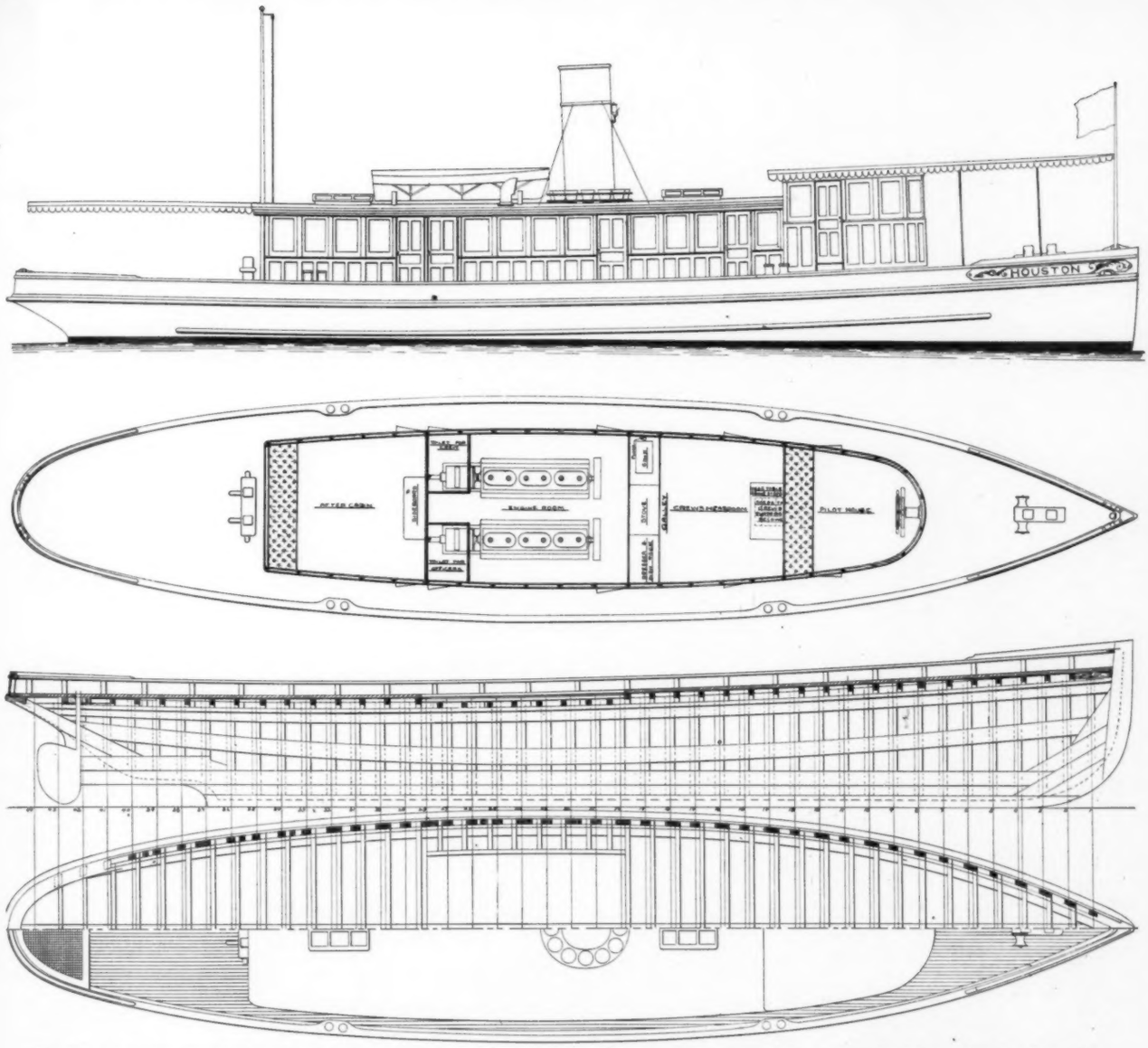
Although speed has been a prime consideration in this design, it is the intention to produce a boat which will combine this feature with comfort and weatherly qualities in a reasonable degree.

The principal dimensions are: Length over all, 51 feet; beam, 6 feet; draft, 2 feet 9 inches; freeboard, forward, 3 feet 9 inches; freeboard, aft, 2 feet 3 inches.

The type of this boat is one that should prove popular for ferry service and for day work at fashionable motor boating centers.



The racy 51-foot runabout, designed by Carlton Wilby, of Detroit, is expected to do in the neighborhood of 20 miles per hour.



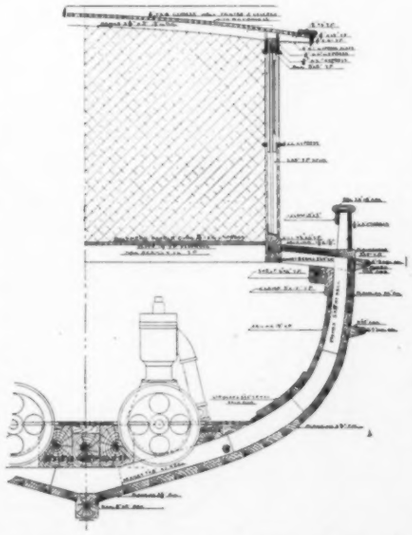
The fire tug Houston, designed by Capt. L. J. Nilson for the City of Houston, Texas, will be equipped with a pair of 75 h.p., six-cylinder Standard motors.

The Fire Boat "Houston."

L. J. NILSON, of the Nilson Yacht Building Company, of Baltimore, has recently designed a twin-screw tow and fire boat for the City of Houston, Texas. She is 80 feet over all with a beam of 17 feet and draft of 4 feet 6 inches, and is equipped with a pair of 75 horse, 6 cylinder Standard motors which will drive her at 13½ miles per hour and will also be used to furnish power for the fire pumps.

The pilot house, which is raised somewhat above the rest of the standing cabin, is roomy and equipped with a large seat across the after end. The next compartment, separated from the pilot house by a cypress bulkhead of double diagonal construction, is the galley and crew's mess room, which will be equipped with the usual appliances. The engines will be installed in the next compartment a little aft of amidships and the after part of the house is devoted to a cabin with an athwartship seat at the after end, sideboard, etc. All of these compartments open onto the decks on either side and there is no continuous passage from one to the other.

The construction of the hull is, of course, very substantial; the keel, stringers, frames, etc., being of oak; the planking is heavy, varying from 2⅞ inches at the keel, 2½ inches at the top sides.



Houston's construction is very substantial.

A stack surmounts the house, above the engine room and the forward and after decks will be provided with awnings.

A 40-Foot Speed Launch.

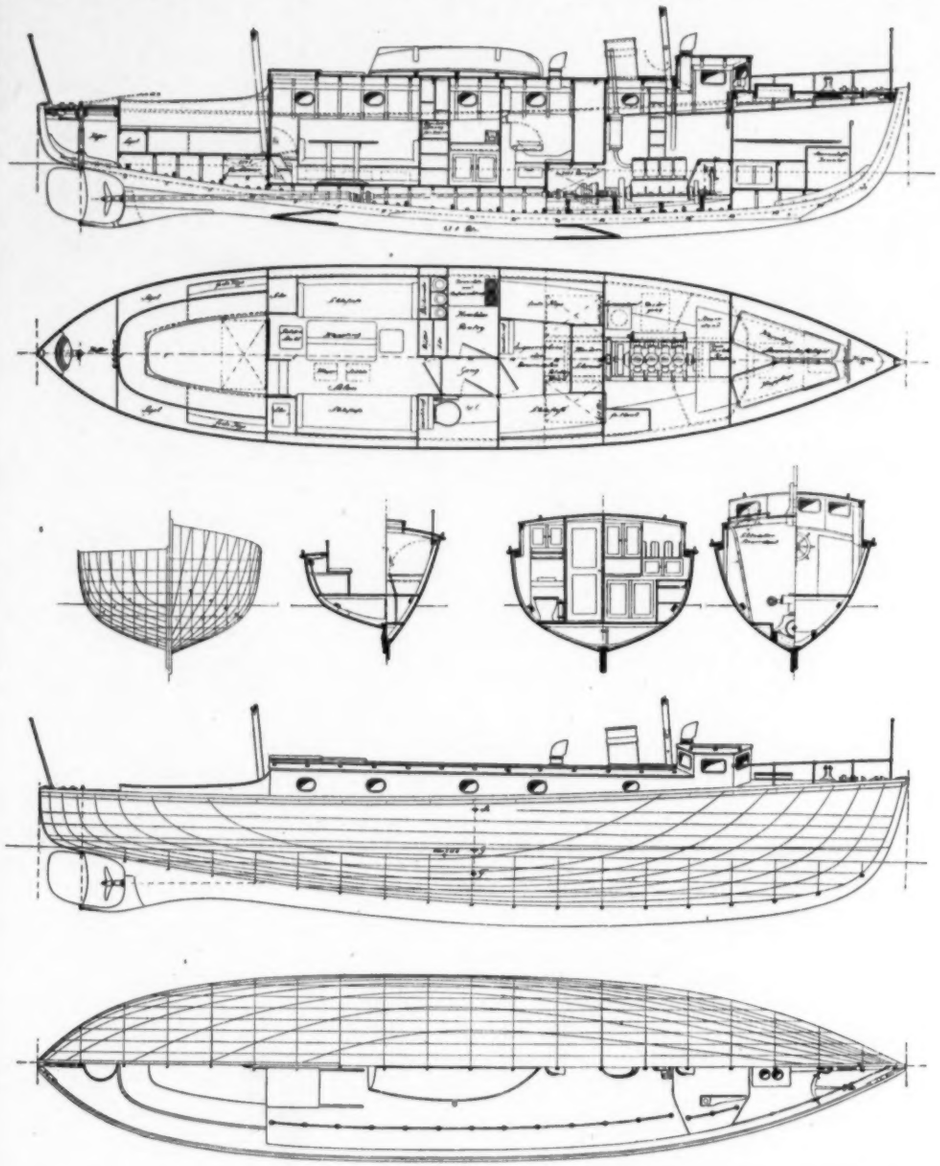
THERE was recently completed at the Lawley Yard, South Boston, a 40-foot speed launch from the design of Messrs. Tams, Lemoine and Crane. Her lines are a development of one of this firm's popular models and her construction, while in no sense heavy is quite substantial. The general dimensions are 40 feet over all, 6 feet beam and 2 feet draft. The keel is of white oak of one length; the stem and frames are also of oak, the latter being bent in one piece from keel to deck. The planking and decks are of mahogany and the boat is copper fastened throughout. The motor foundation is of elm and is of extra heavy construction.

There is a long turtle deck forward and a water-tight bulkhead forming a compartment in the bow. Aft of this the motor is installed beneath folding hatches flush with the deck. In her large cockpit there are three thwartship seats so made as to be removable.

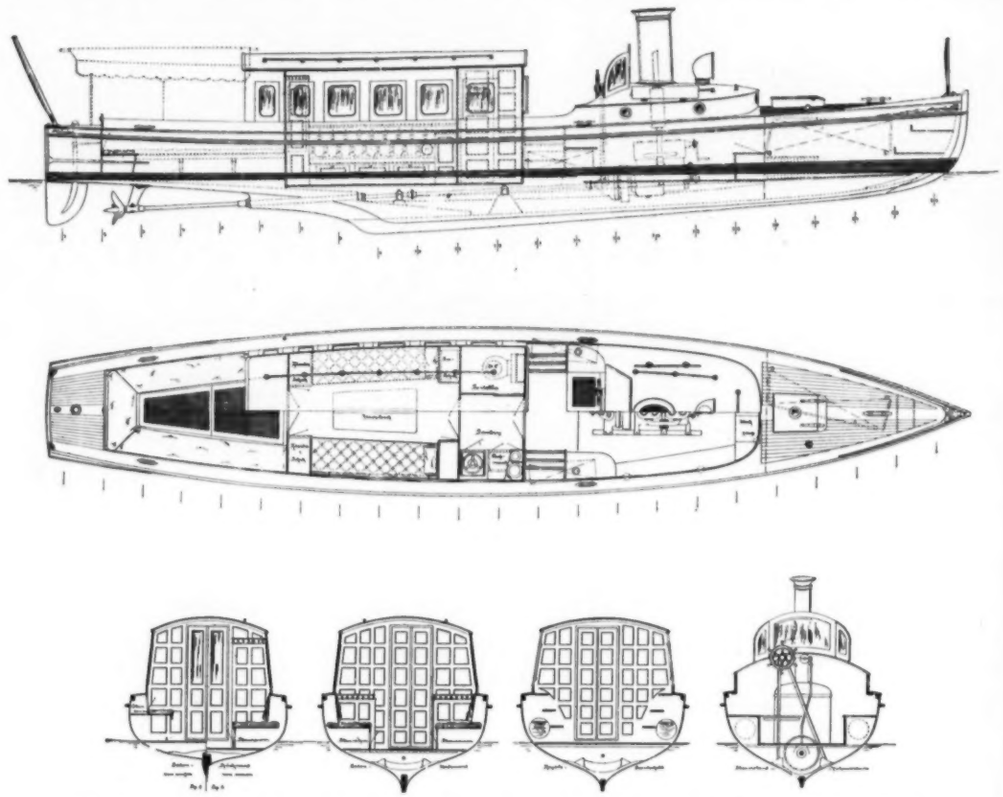
The power equipment is a 175 h.p. Jencick motor with reverse gear and compressed air starting device. Gasoline tanks are of pressed steel and there are four of them. The shafting is of Krupp steel, the rudder is of bronze and the propeller is one especially designed by Mr. Crane.

The boat was delivered recently to her owner, Mr. C. R. Hoag, of Newark.

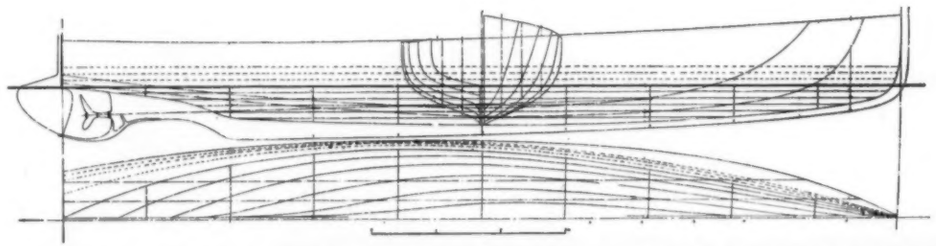
Recent German Motor Boat Designs, That Are Not Only Characteristically German But Are Typical of the Latest Practice in That Country



The design of a cruiser by Hans F. Baasch, of Kiel. Her exceptional draft and freeboard and the symmetry of her lines should make her a seaworthy craft.

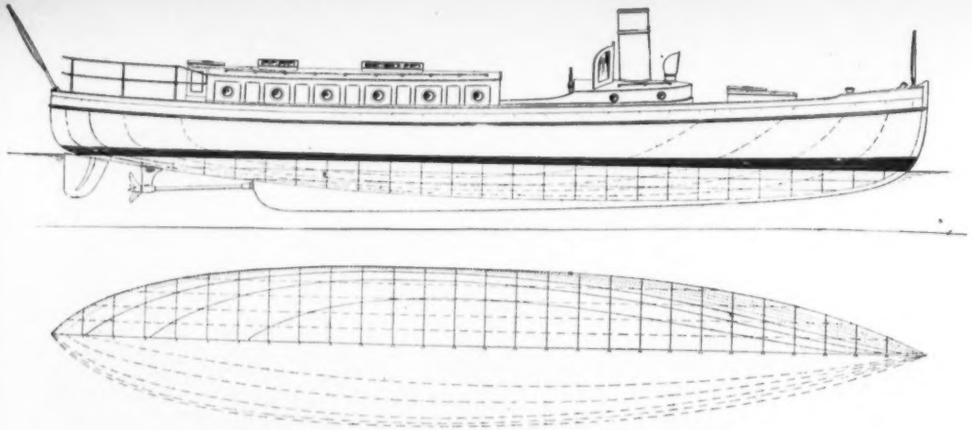


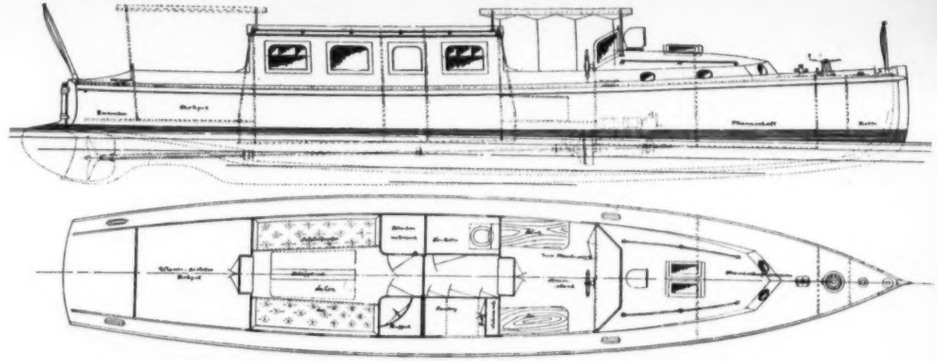
Hermine, a motor cruiser designed by Max Oertz, of Hamburg, and built by the North German Automobile & Motor Company, of Bremen. Her dimensions are: Length over all 41 ft., beam 8 ft. 3 in., draft 2 ft. 10 in.



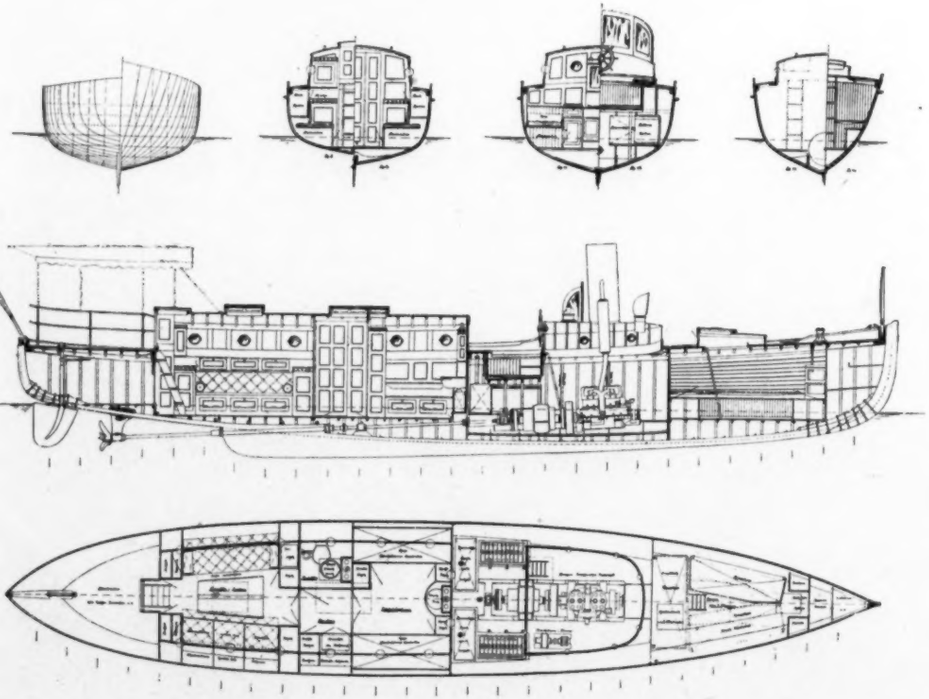
The lines of the 42-foot cruiser designed and built by F. Lürssen, the outboard profile and accommodation plan of which appear below.

commodation plan of which appear below.

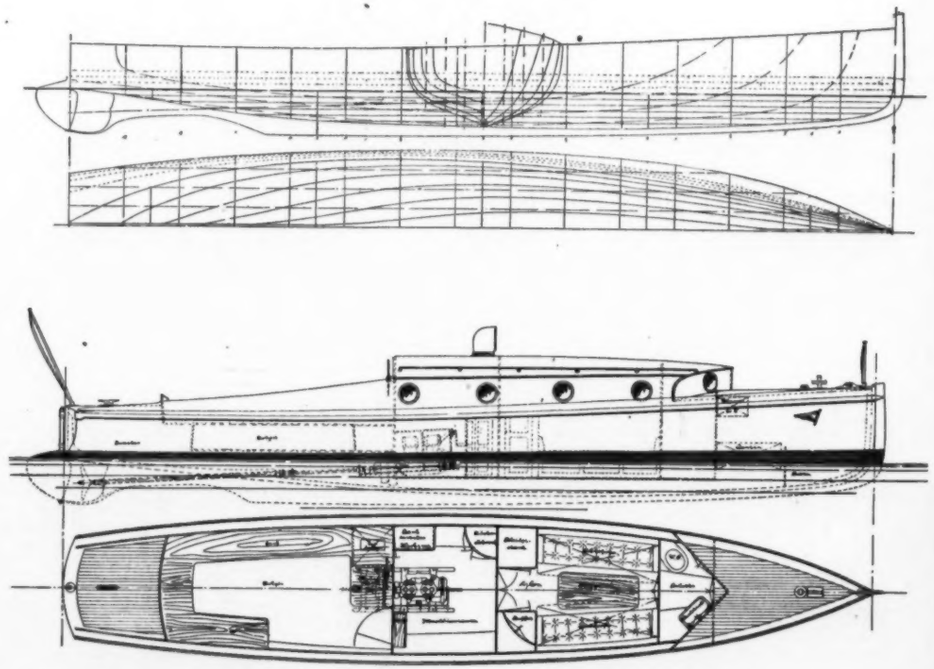




A cruiser for coast waters designed and built by F. Lürssen, of Vegesack, Germany. She is 42 ft. 6 in. over all; her beam is 8 ft. 3 in., and her draft 2 ft. 10 in.



The typically German ocean-going cruiser, Roland, designed by Max Oertz, of Hamburg. She is 55 ft. 6 in. over all, with beam of 10 ft. and draft of 3 ft. 3 in., and is equipped with a 50 h. p. Daimler motor.



A hunting cabin cruiser somewhat similar to the American type. She was designed and built by F. Lürssen; her length over all is 39 ft., beam 7 ft. 6 in., and draft 3 ft. 11 in.

A Dory That's Certainly Different.

A "Banker" Made Into a Good Motor Boat at a Cost That Was Only a Trifle. How I Corralled, Broke and Harnessed a "Broncho of the Sea."

By Burke Jenkins.

I DON'T see how I can get away from spinning this yarn in the first person; for, after all, what I did to my old "banks" dory was after my own fashion. I succeeded in making just such a slapabout, dependable craft as I set out to accomplish and, if you want the same things I did, maybe you can pick up a wrinkle or two from my experience.

To begin with, then, some fifteen years of knocking about in many manner of sail craft made me a stubborn convert to "put-puts." But it *is* a bit irritating to see that other fellow curling foam at his cut-water while the wind is "up and down the mast," so I finally had a little talk with myself and made myself buy a motor. Then I set out to find a boat to run it in. I decided to learn the game.

For an open boat I have long had veneration for the dory. It simply cannot be beaten for safety in rough water, and right here I want to put in a good word for the *original* dory, the old flat-bottomed, flat-*sided* affair that you can see "nested" on the decks of fishing schooners.

There are those who will tell you that they are not adapted to motors, that they become unstable, wild brutes the minute you put "power" in them. This didn't sound reasonable to me; so I bought one. And the old tub has more than paid me back for my confidence in her.

Here, then, is how I went about it:

The man I bought the hull from had gotten it from South Brooklyn where they are frequently to be had for the extraordinary sum of fifteen dollars. Something the matter with them? Well, yes; but usually nothing that a little fixing won't make as strong as ever. As a general thing you'll find that some of the ribs have given away at the sharp bilge; and maybe one of the strakes has been "checked"; but they're really not *old* boats.

The duty the fishing dory has to perform is such a strenuous one that it is seldom they live long enough to *rot*. They die violent deaths, in other words. So it is that, whatever damage they have received, you can discover upon easy inspection. Furthermore, you'll find you have *sound* wood to begin operations upon in converting the dory to power.

I paid twenty-five dollars for my hull; but I put a string to my bargain. I made stipulation that I was to have gratis as much of the drift wood, etc., lying about the yard as I needed. Incidentally, I didn't buy a stick of wood in fitting her out. Even the engine bed came to me this way.

It's fun to look over an empty old dory and think out how you're going to begin. Now, there were several points that I was bent upon having.

I made up my mind that I was, in some way, going to separate the grease and whirling parts generally from the rest of the boat.

Another thing I was going to aim at was freedom from vibration; for I hate to hear my teeth chatter.

Again, I determined that there should be space enough, somewhere, for a fellow to lie out full length, if I ever wanted to be spartan enough to sleep in her.

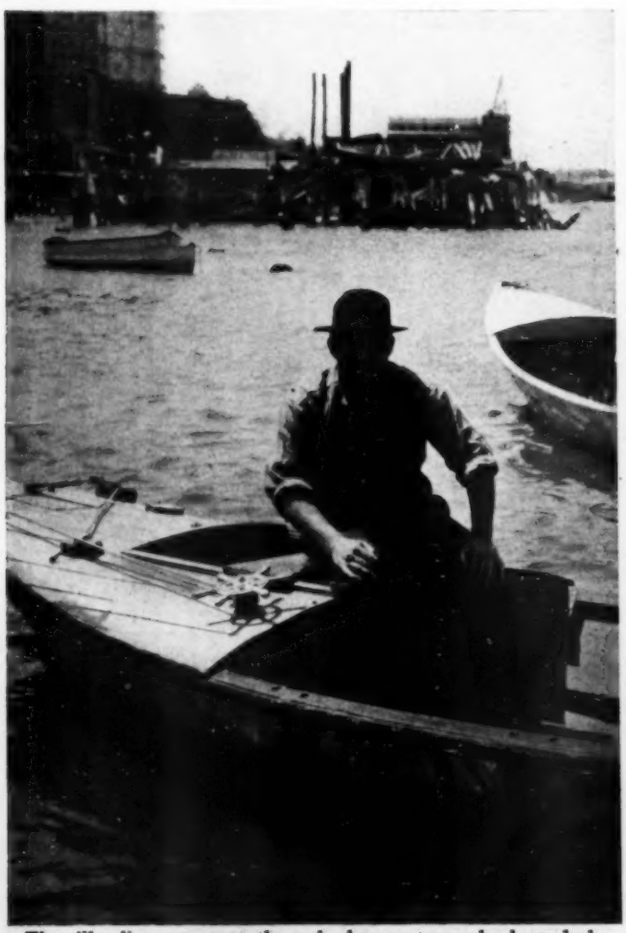
And last, but not a bit least, I was going to fashion her arrangements so that a good, husky padlock would change the penalty from just plain "lifting" to out-and-out larceny. I have a friend who has twice replaced everything from spark coil to a hack-sawed and propeller-bereft shaft.

In spite of the congregated advice that clustered about me as I worked, I really have succeeded beyond my hopes in securing what I set out for. I made absolutely no pretence at nicely finished work. Indeed, the way I slammed things together was often shocking to the bystanders. But I did make everything strong. And my experience prompts me to say that anybody can make an out-and-out serviceable power boat out of one of these old dories.

It's a far better proposition for the amateur than to think of building the whole boat himself; and as to price, you couldn't get the lumber itself for what you get the boat, and you're sure of a seaworthy type.

Now the first thing I tackled was the shaft log proposition. And it is right here that most trouble for the new man comes in. I confess I was afraid of that job. But a new appliance came to light that looked good. I refer to the automatic aligning stuffing-box and shaft log combined.

I bought one, though it did cost more than the regulation affair. Then I turned the hull bottom up and went to work.



The tiller lines are rove through sheaves to a wheel on deck.

A hatch with single padlock incloses the motor and all the vitals.

I simply bored two auger holes some eight inches or so apart at the extreme after end of the boat's bottom. Then I cut out the wood between them with a compass saw, making simply a slot instead of the usual long boring for the shaft.

The original "Banker" is the easiest possible boat to work on.

Over this slot I slapped the metal shaft log, screwing it well into reinforcements to strengthen the floor. Some canvas, plastered liberally with white lead, made this an absolutely tight job from which, literally, I haven't had a drop of complaint. Forward of this metal shaft log I bolted a skeg to protect the wheel and make her steer better.

The thing proved so easy I was almost afraid of it.

Then I turned the boat right side up, propped it on some timbers, and set about the engine bed. I decided to put the motor just as far aft as was possible. My reason for this was to get the greatest amount of room free and clear.

Of course such a location necessitated an excessive rake to the shaft, particularly so as I had the stuffing-box right under her. But I argued that the wheel would have all the better hold on solid water; and that whatever of upward thrust she might have would go toward counteracting any "squat," a bad tendency with the average dory.

Again, putting the engine thus high (the flywheel is a good eight inches from the floor) kept it well out of the wet; there is no flying water when it's coming aboard; and, if you have to crank her, it's a cinch—no skinned knuckles.

The engine bed I made of four-by-sixes, bolted right through the bottom of the craft—an excessively heavy job; for I wanted to kill vibration. And to further this end the more, I put a rigid bulkhead from one side of the boat to the other just forward of the engine, leaving only room enough to get at the flywheel.

Aft of the motor I installed the tank, a cylindrical, twelve-gallon affair. A box for oil cans and tools on one side was balanced by the battery box on the other.

Then I decked my "engine room" over from stern-post to my bulkhead, simply leaving a good, roomy hatch directly over the engine—big enough, in fact, to lift the entire engine out of it, should I want to overhaul it. The bulkhead has no door or slide at all. It's rigid from gunwale to gunwale.

So far, then, here is what I had accomplished: I had devoted about seven feet of my entire over all length of some twenty to the motive power, and in that space I had absolutely everything that goes toward propulsion; engine, tank, tools and electrical equipment. All this, too, under a removable hatch with a padlock, which, when I'm under way, is simply laid down on the floor or propped up as an excellent lazy back.

And I cannot dwell too strongly upon the comfort of mind one has to be able to slap a heavy padlock in protection of everything that goes to the running.

Then comes the steering gear. The rudder I shipped through a pipe run from transom to deck with the usual tiller accompaniment. Blocks and tiller lines lead to the wheel, a solid galvanized one, which I located on the deck on the starboard side and right near the bulkhead. This arrangement brought me what I was after; namely, *one* point in the boat where she could be controlled by *one* person. For, seated at the bulkhead, I can turn on the "gas," tickle the carbureter, buzz away at the spark, bring the flywheel up to contact, and steer the tub without changing my position in the boat. My passengers, if there are any, are absolutely out of the way. There's no danger of the flywheel, no grease spattering around, and I don't have to pass anybody to get anything if she balks.

Now, forward of the bulkhead there is absolutely nothing but open boat for a distance of about eight feet. I left this free and clear, even of seats. So that there is plenty of room for two people to sleep comfortably in her under a canvas shelter, if one is so minded to do the back-to-nature stunt. Personally, I like a spring bed.

The floor itself I made amply high to keep one's feet from the wet when it's coming aboard and, forward of my eight foot floor, I put another bulkhead. I decked over the bow, made another hatch, and so had a bully locker in which to stow that formidable Government regulation equipment—four lamps, a cute brass bell I've never rung, a fog horn that's dented as Paddy's derby, the whistle that shrieks, and a very damp brace of copies of the government regulations. These, along with a folding anchor, a jug, a pail, and folding camp chairs for the ladies.

I was about a week at the work which I gleefully smeared all over with "war color" grey paint with black trim. Then I bought a bottle and called on the bystanders to help me slap her into the element.

She rode to a good trim, somewhat up at the bow (which I favor) and the initial trip was made with eight aboard, and against the Hudson's outgoing tide.

My engine is a Stanley, rated at two and a half horse; but if she doesn't develop nearer four I'll eat my hat; for with all this crude rig of mine and in a heavy and large hull for her size she sent us along at what I believe to be an honest eight miles.

It does seem to me, though, that the buying of a second-hand engine is a pretty risky move for one who is not entirely conversant with their every sign of wear and abuse. Indeed, I've found it an improvement of one's general satisfaction to get the very best in engine equipment throughout.

Remember (and it certainly is odd how seldom the new man does remember it) that the motor is the keynote of the whole thing. Buy the other kind if you want to extend your anathematic vocabulary rather than your mileage. Haven't you witnessed the bent back of the man in mid-stream, silhouetted against the setting sun, cranking profanely at a perverse and blue-coughing hunk of iron, while the ebbing tide wafts him softly but surely seaward?

I have time and again, and so I have never regretted paying what I did for the engine outfit.

In fact, actual test has shown the whole method I employed in fitting the dory for power to be most practicable along the lines I desired.

So you have it, then, that I got what I went after. I got a boat that I didn't feel nervous in when it began to blow up a bit, in the first place. And the joy of having a battered old junk that you can slam around just as much as you want to! None of these polished-decked, rubber-soled, pampered boats for me! To my mind two things are absolutely necessary in a boat.

She must not leak—a leak makes me sick. And the engine must mote. All the rest are frills.

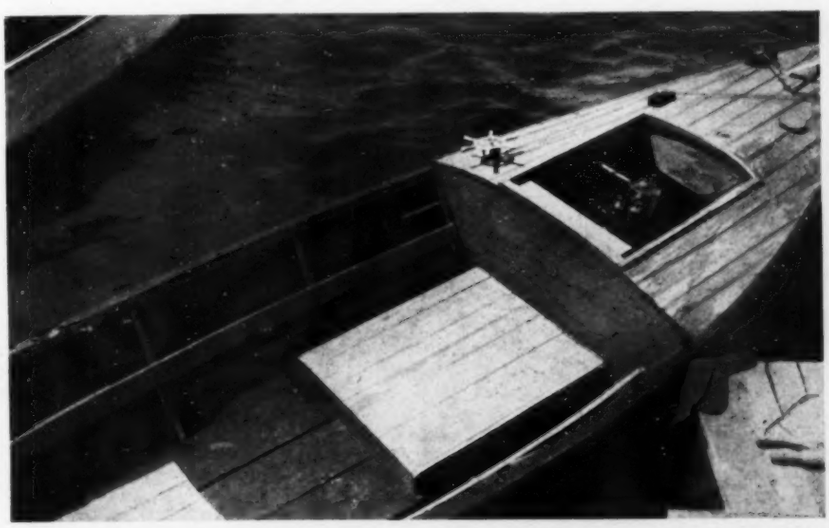
Now as to cost for such an entire outfit, one can make it little or big according to his own way of looking at it.

I don't question that, with a good second-hand engine, and guarded "extras," the figure could be made just within a hundred dollars. Mine cost me considerably more, for everything that pertains to the running, I saw to it, was of the best. You see, as I said at the outset, I wanted to learn how to run a motor, to learn the game, with the view to making my next step toward a larger auxiliary.

I hope I have done my small tribute to the old dory, the *original* dory which I learned to respect some years since and some three hundred miles off shore.

She does seem a fearsome critter for lurches when you first step into her; but she's really only pranky, not cranky. She's only fooling you, for she'll only roll just so far. And, if you're after a good, wholesome, open boat that you can rig up as cheap or cheaper than some of these cockles that look so sweet in the windows, why, just buy an old "banker" and get busy.

She won't disappoint you.



The cockpit is about 8 feet long and is left clear for the use of folding chairs.

Talks With Our Naval Architects.

Arthur Binney.

ARTHUR Binney was born in Boston. He attended both public and private schools, and after a short course at the Massachusetts Institute of Technology, worked in the shops of the Whittier Machine Company to obtain a knowledge of practical machine work. Late in the winter of 1887, he entered the office of Edward Burgess, where he began his first practical work in naval architecture. After the death of Mr. Burgess, in 1891, he formed partnership with George A. Stewart, and under the firm name of Stewart & Binney, carried on the business of naval architecture and yacht brokerage. Since the death of Mr. Stewart, in 1894, he has continued in the business, designing many sailing and power craft.

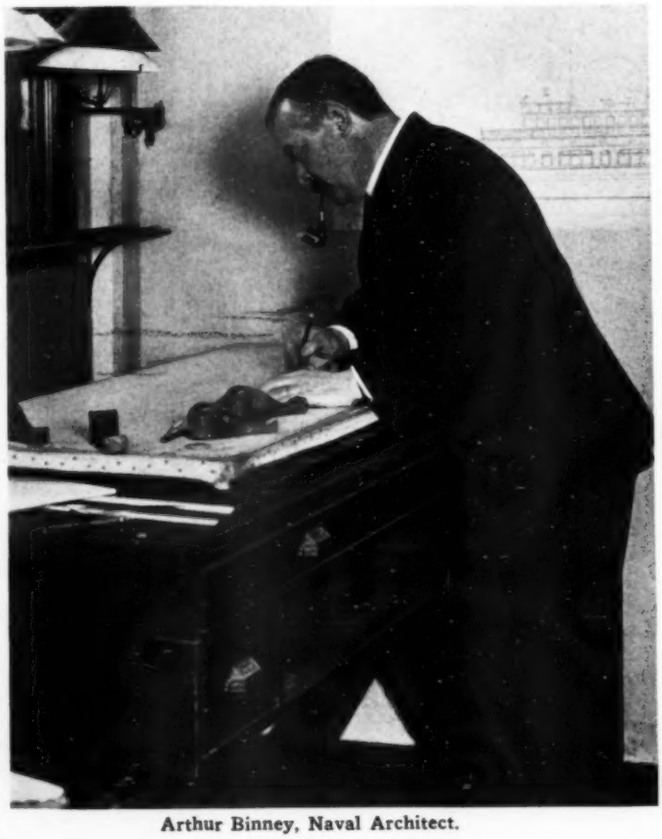
Mr. Binney has done very little in the racing boat line, for as he says: "My inclination and taste have always been with the cruising boat. The design, construction, and the laying out of the accommodations below, are to me a most interesting study. In the smaller boats, particularly the work of making comfortable accommodations, as well as necessary and convenient lockers, etc., for holding the many little things which accumulate on a cruiser has always interested me very much. Perhaps this is so because I have myself done so much cruising in the smaller boats along our New England coast.

"The modern gas engine has added another interesting feature; in fact, I think the large cruising sailboat without power is practically a thing of the past.

"The installation of the gasoline engine, particularly the fuel tanks, is a matter that should be considered with the utmost care to eliminate, as far as possible, the dangerous features of the gasoline. If properly installed, properly ventilated, and fitted with proper vents, etc., I believe there should be little or no danger from the gasoline."

The so-called producer gas system will undoubtedly be developed rapidly within the next few years. It is already used on commercial boats to a small extent, and of course is becoming more perfected every year.

Mr. Binney is, and has always been, a strong advocate of the wholesome cruising boat, either small or large, and was one of the first architects to advocate the use of a gasoline engine as auxiliary power. Since building the auxiliary cruising knockabout Barnacle, in 1895, he has devoted much time and study to that type of boat. The 46-foot waterline auxiliary yawl Comanche, the auxiliary schooners Felstedquin, Margaret, Savarona, and sloops Geisha and Melusina, are all from his board. Some of the well known fishermen were designed by him, such as Mary G. Powers, Arthur Binney, Mary A. Whalen, Katherine & Ellen, and Benjamin F. Phillips; the latter, the winner of the Thousand Dollar Prize in the Fishermen's Race of 1901. The two city of Boston police boats, Guardian and Watchman, are other examples of his work.



Arthur Binney, Naval Architect.

With his fondness for machinery, Mr. Binney very naturally became deeply interested in the gasoline engine, and some of our best and largest cruising power boats are of his design. The Kasagi, Naoma, Shada, Stave Island and Shad, and steam yachts Swifan, Orca, Bohemian and Pawnee.

His latest and largest gasoline cruising yacht is Monaloa, an illustration of which is shown below.

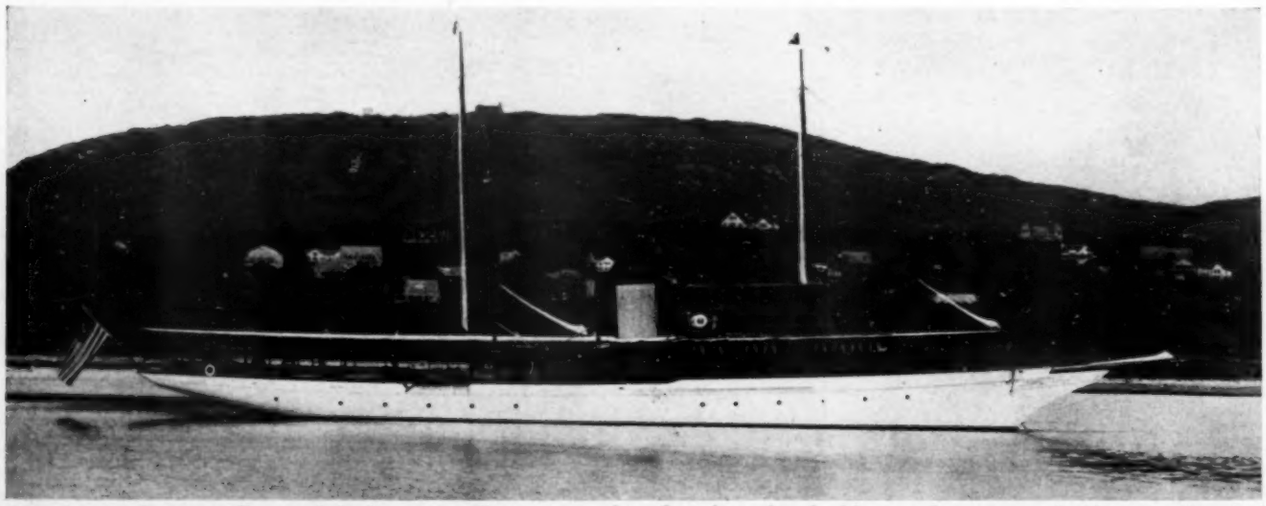
She is one of the largest gasoline motor yachts afloat. Built for Mr. C. B. Borland of Chicago, she is 130 ft. over all and 105 ft. on the waterline, with a beam of 15 ft., 6 in. and about 8 ft. draft.

The power plant is a 500 h.p. Standard double acting motor which gives her an all day cruising speed of about 13 knots or 15 statute miles per hour. In appearance, Monaloa is a typical steam yacht, with trim clipper bow, overhanging stern, stack, masts, etc. Her appointments below are well worked out and luxuriously finished, while above board she has ample decks and a house forward, containing the smoking and dining rooms.

A novel feature of her fuel installation is the manner in which gasoline is handled. As the gasoline is used, water is forced into the tanks, the gasoline floating upon it so that at no time is gas permitted to collect in the tanks. This system is so arranged that it is impossible to force gasoline through the overflow and it is also impossible to force water to the carbureter.

There is a 14-K.W. generating outfit installed in the engine room which, besides lighting the boat, furnishes power for the windlass, ventilators, etc.

A fully illustrated description of Monaloa appeared in the December 1909 issue.



Monaloa, 130 feet over all, one of the largest gasoline motor yachts afloat, is equipped with a 500 horsepower, double acting Standard.

Lessons From the Marblehead Races.

An Intimate Discussion of the Various Boats That Have Competed in These Events. What the Performances of These Boats Have Taught Us in Design.

By Allan O. Goold.

SINCE Talisman won the first Marblehead race in July, 1905, the advances made in building and equipping motor cruisers for outside work have been most remarkable, and for many of these improvements the lessons taught by the races themselves are directly responsible. The twelve boats which braved the howling North Easter in that strenuous event would not appeal to us today as very promising craft in which to cross the storm-swept shoals, and the fact that five of them succeeded in finishing the race speaks well for the seamanship and hardihood of their crews.

Talisman, one of the smallest contestants in the fleet, finished some eight hours ahead of her nearest competitor, and Blink, Glissando, Aquila and Woodpile crossed the line at irregular intervals, leaving the other seven boats scattered along at different ports, having put in for shelter wherever pounding seas or breakdown of motive power forced them to adandon the contest.

Talisman, the winner, was a thirty-two foot trunk cabin cruiser, with a canoe stern, and was powered with an eight horsepower, two cylinder Murray & Tregurtha motor. She was a beamy boat (8 feet 7½ inches), and by no means fast, but her ability to keep going through thick and thin gave her the victory over far speedier but less dependable craft. Many of her competitors suffered from engine troubles, most of which were the outcome of faulty installation. Tanks were poorly secured and shifting in the heavy sea caused dangerous leaks in the gasoline piping. Ventilation was disregarded. Little or no effort was made to filter the fuel at the vaporizer. Among other casualities, Aranca's vaporizer became clogged with sediment stirred up by the violent motion from the bottom of her tanks, and she was towed into Newport by the steam yacht Wild Duck. General Bumps, the smallest entry, fractured her gasoline feed pipe and limped into port at Chatham. Yeddo blew out a cylinder head gasket and eventually reached Marblehead five days and more after the start, having meanwhile made repairs at Provincetown. Highball's clutch gave out and she was towed into Boston. Nearly all the boats reported trouble with some portion of their mechanical equipment.

This fleet of 1905 was probably representative of the best small cruisers of that period. The hull construction of the contestants was uniformly good, but from the viewpoint of today the design of the hulls, and more conspicuously the motor installations and general equipment, were not by any means what they should have been for the work undertaken. Talisman, the winner, had a well modeled hull, and with her considerable dead rise and easy ends was difficult to improve upon as a sea boat. She was somewhat underpowered, but what power she did have was dependable. The next year a 35-foot boat was entered built upon substantially the same lines as Talisman, but in every way more powerful. She was called the Gertrude. Talisman had a good sized cockpit, and fairly long cabin trunk. Her fuel tank was in the bow after practice of that time, and her motor in the cabin. Her cabin had accommodations for two to sleep on transoms forward, with toilet, galley and engine space aft.

May, Igniter, Aranca, Blink, Highball, Aquila and Yeddo also had whaleboat or compromise sterns. General Bumps had a square stern as had also Glissando, while Woodpile had a stern of the Normand V type, with little or no rake to the stern post. All the boats had the old style of trunk cabin, except Aquila, which had a turtle back deck with screw ports in the hull itself. Aquila was a very handsome boat, and well adapted to outside cruising. It is the opinion of the writer that she was designed by Hand, of New Bedford. Glissando was the only boat which had sash lights in her cabin house, the rest all being fitted with screw ports, which are, of course, much the safer means of lighting the cabin.

It is worthy of notice that all these boats being of a wholesome type are today doing good service as cruisers, while it would be difficult indeed to find even one speed boat of that season still in commission. Yeddo is still owned by Stanton M. Smith, who owned and commanded her in the race, and the writer was on board of her last summer in Casco Bay. She is in fine condition, and is good apparently for many years more. He also saw Woodpile two years ago, and she was as shipshape as ever, and capable of entering another Marblehead race at any time. She was one of the first cruisers to be built with the Normand V stern. Aquila was advertised for sale recently, and her owner in his description says that she is as good as new, which is doubtless the case.

The other boats the writer has no means of locating. They are probably widely scattered, and have most of them changed hands at least once since the first Marblehead race made them famous.

In 1906 the boats which came to the line at Marblehead embodied many ideas which were the outcome of the experiences of owners and crews in the former contest. Several new boats appeared which were especially built for this race, some of them by owners contested in the previous event in smaller and less powerful craft. Two of the 1905 fleet, May and Aranca, entered again, showing that the rough handling of the year before had in no way shaken the nerve of their owners. A. L. Lincoln, the owner of Woodpile, entered the handsome new cruiser Unome. Richard Hutchinson had a new and likely looking boat, Davy Jones, in place of his Highball, and Mr. J. J. Tobin's Gertrude, which, as has been mentioned, was an enlarged Talisman, Mr. Swasey's Sarapa and Mr. Stevens' Sis, were all new and able boats.

These new boats were built close to the limit of length, 40 feet, and were equipped with more powerful motors than were used in the boats of a year earlier. There were twelve starters as in 1905, and Sis won the first prize on time allowance with Susie second and May third. In fact all the prizes were won on time allowance, and through an error in figuring it was for some time supposed that Sis was the winner. Unome made the best actual time, but received no official recognition. Her time for the distance of 320 miles was 33 hours and 46 minutes. She was powered with two 15 h.p. Barber motors driving twin-screws.

Davy Jones, also a twin-screw boat, had two Jager engines of 12 h.p. each.

Both Unome and Davy Jones were constructed with a raised deck forward in place of the cabin trunk, with narrow decks on each side. Sarapa, however, held to the older style of construction. Most of the boats had self-draining cockpits, a most commendable feature in craft designed for outside work. Unome had a flush deck aft in place of a cockpit. This was surrounded by a heavy pipe rail. The canoe of compromise stern still remained the favorite although Yo Ho and Susie had modifications of the V transom.

The weather was good throughout the race, and but two boats failed to finish.

In 1907 the number of starters fell off to seven, but the quality of the majority was remarkably good. Picaroon, a 40-footer, with an 18 h.p. Standard, was a very promising craft, and Hopalong, with a 25 h.p. Jager, was the fastest boat ever to race around the Cape. Irene, with a 12 h.p. Standard, a smaller boat, 33 feet in length, completed the trio of specially constructed craft.

The other four were Whew and Susie of the 1906 fleet, Aldred, a small Cary Smith and Ferris design, and Argo. The weather as in the previous contest was good throughout the race. Hopalong made the fastest time but lost to Picaroon on time allowance. Her time of 30 hours 42 minutes is the record for the distance.

In this race the lessons of the two previous contests bore good fruit. There were no noxious fumes of burned gasoline and cylinder oil to make a hades of the living quarters, for the ventilation was carefully looked after. The crews were better housed and fed, and consequently were better fitted to devote themselves to their duties. Aldred, it is true, was scarcely fitted for outside cruising, and while an excellent little boat, would probably have suffered severely had heavy weather been encountered. All the others were big, husky craft, capable of going anywhere in pretty nearly any weather.

In 1908 a fleet of thirteen starters broke the record for the number of contestants. Kittrois, Lesbia, Irene II, Eronel, Iloilo, Alsoran, Chud, Fortuna II, Polywog, Elad, Dandy II, the 1907 winner Picaroon, and Barbara, made up the field. Eight of these had the raised fore deck, and in most cases the narrow side decks were dispensed with as serving no useful purpose, and weakening the hull construction needlessly. Four boats, Dandy II, Fortuna II, Elad and Barbara, had the regular trunk cabin, while Alsoran was a combination peculiar to herself. The weather was bad much of the time and caused trouble among the racers. Chud burned out a main bearing on her big 36 h.p. Buffalo motor, and was towed into Chatham by Dandy II. Iloilo, Elad and Irene II had trouble with their gasoline tanks and connections caused by pounding into head seas. Alsoran, whose motor was beneath a fore hatch, had her high tension wiring short circuited by water which found its way below when the fastenings of the hatch carried away in the heavy sea. Her engine department were forced to entirely rewire the engine before they could proceed. Chud, however, was the only boat in the fleet that failed to finish. Irene II was first, Eronel second and Picaroon third. The victory of Irene II was due to skilful piloting as much as to actual speed. She was the first Marblehead racer to win by both elapsed and corrected time.

We now come to the race of 1909 which is no doubt fresh in the minds of many of us. Twelve starters came to the line on Saturday, July 17th, off the Crescent Athletic Club, Bay Ridge, New York. Twelve, by the way, seems to be a safe number to count on for the Marblehead race. The weather was uniformly good and there were few exciting incidents to make the 1909 contest memorable. The one dramatic happening was the unfortunate burning of Mr. Gheen's high speed cruiser Kitcinque at sea. She was a new craft and a departure from the usual type of previous entrants in the Marblehead contest. Kitcinque was designed along speed lines and with her rather light construction and high powered motor was calculated to outrun her time al-

lowance by a safe margin. At the time of her taking fire she had a commanding lead over the entire fleet, and had she been able to finish the race would undoubtedly have set a new record for the course which would have been difficult for other craft to equal.

The boats were an uncommonly fine lot, and all finished except Northerner, of New York, which broke down near the start, and, of course, Kitcinque.

The fleet consisted of Elmo II, the winner, Lizzie L., second, Irene II third, Sagamore III, Kittrois, Barbara, Josephine, Nimrod, Niobe, Northerner, Kitcinque and Square Deal. Of these Nimrod, Sagamore III, Lizzie L., Josephine, Elmo II, and Kitcinque were built expressly for the race, and Irene II, Kittrois and Barbara were boats which contested in the 1908 event. Nimrod, a little 30-footer, made a remarkable showing and had she not been obliged to run in to Cottage City for gasoline, she would have made the best time of any contestant. As it was her time was only 32 hours, 30 minutes.

The Marblehead races have helped to develop a type of sturdy, powerful cruiser of heavy construction and seaworthy form. While the regular trunk cabin has been used in boats in every race, still the full raised deck construction, as exemplified by the Picaroon, Kittrois, Irene II and Elmo II, appears to be best adapted to outside work. Flush decks aft or a self-bailing cockpit are generally used and in the best practice the fuel tanks are placed either on deck or in the cockpit. These must of course be of very substantial construction, with swash plates properly located to prevent straining the tank in a heavy seaway. The tanks cannot be too strongly fastened in position, as the consequences are serious should a tank shift sufficiently to fracture the feed pipe.

Efficient filters should be in the gasoline line between tank and carbureter, and all gasoline should also be filtered through chamois before it enters the tanks to insure freedom from dirt or water. These precautions are now generally taken by Marblehead contestants, but the neglect of them has caused much trouble in the past.

The heavy, slow moving motor of the four cycle type, has always been the favorite among ocean racers, since it is strong and does not tear itself to pieces turning up to a high number of revolutions. The large wheel of such an outfit is also more effective in driving a heavy hull in a seaway than a quick turning propeller of small diameter. Perfect lubrication is most important and should be, and nowadays generally is, of the automatic type. Only the best oil should be used.

The form of hull has resolved itself into a high freeboard model, with plenty of dead rise fore and aft. The bow may be either raking or practically plumb, as experience has proven that either is satisfactory. Flare is desirable as tending to keep water off the decks while assisting to lift the vessel in a seaway without cutting down her smooth-water speed. The stern may be of the sharp form, as represented by the canoe, whaleboat of compromise type, or a Normand V or plain transom style, provided that the quarters are not too heavy. Dead rise aft is an important factor in insuring ease in a seaway.

All deck openings should be thoroughly protected and should not be any more in number than necessity demands for purposes of ventilation, light and easy communication with the living quarters. Hopalong's experience in 1907 taught that a fore hatch should be secured firmly in position by a strong hatch bar, as well as the fact that if a jump spark outfit is used in outside races it *must* be placed where no water or dampness can possibly reach it. Chud's experience in the same race leads us to appreciate the importance of good ground tackle in case of being disabled at sea. A heavy anchor and fifty fathoms of chain or heavy manila cable should form a part of the equipment of every contestant. From the fact of Mr. Gheen's Kitcinque we may take to heart the important lesson of keeping all gasoline and oil out of the bilges, and a power bilge pump, running continuously, will aid greatly in effecting such a result. A copper pan under the carbureter will catch possible leakage and prevent the flame from a carbureter explosion reaching any inflammable material beneath it. Of course a good chemical fire extinguisher should always hang close to the engineer's hand.

A serviceable tender should be carried not alone because the rules demand it, but as a common sense means of taking care of the ship's company in case it becomes necessary, as in the case of Kitcinque, to abandon ship on short notice. We recall an instance in one of the races where a contestant carried her skiff bottom up on the cabin top with a hole in its bottom through which was shipped the cruiser's signal mast. Most fortunately in this case the skiff was not required for life saving purposes.

Electric lights are a great convenience both below where the engineer must greatly appreciate a good safe light near his machine, and for running and binnacle lights on deck.

The steering gear is of such vital importance that it generally receives careful attention. Few cases have occurred where the steering apparatus absolutely failed while the boat was on the course. A relieving tiller should be fitted to the rudder heal so that the boat can be controlled in case the regular gear breaks down or jams.

Twin-screws have never become popular on small cruisers. In 1906 two boats, Unome and Davy Jones, were so equipped, but they were, the writer believes, the only craft of their type to figure in any of the races around the Cape. They were, nevertheless, successful boats, and are undoubtedly still giving good service with their original mechanical equipment. Davy Jones is now the property of Mr. Holman F. Day, the Maine poet and novelist, and is a recent addition to the Portland Yacht Club fleet.

The Prize Contest *in* Questions and Answers

ON the following four pages appear the answers to the questions which were printed in the June issue of MOTOR BOATING. Several methods of rigging up a jury rudder in case of an accident to the steering gear, are considered, and as this part of the boat is likely to be the first to become disabled in a blow these suggestions should be of interest to all motor boatmen who cruise "outside." The practice of lubricating a two-cycle motor by putting the oil into the gasoline tank is discussed both pro and con. Some of us are likely to be skeptical in spite of the phenomenal performances claimed by others that have already tried it, perhaps because we don't thoroughly understand it. Here you have both sides of this interesting question presented; which side are you on? If you have ever served on a program committee and been up against the delightful little job of entertaining the fair visitors on regatta day, you will be interested in the answers to the third question about novel "stunts."

Perhaps you have a question in mind that you would like to see discussed or that you feel that you could answer. If so, why not send it in? We want good questions, questions of interest to motor boatmen. It is everybody's contest—come in.

READ the general conditions again: We will give prizes to those who send in the best answers to the questions printed herein each month, and in order that the contest may be helpful to the greatest possible extent, we will give prizes for the best and most practical questions submitted for the next following competition. There will be three questions in the contest each month, and therefore three prizes for the answers.

THE QUESTIONS FOR THE OCTOBER CONTEST ARE THESE:

Give instructions and drawings for the construction of a simple, home-made binnacle with lighting arrangement.
Suggested by Allan O. Goold, Portland, Me.

What is the best type of galley stove for a small or medium-sized cruiser, and what provision should be made, in installing it, to secure safety and good ventilation.
Suggested by J. Walter Scott, Detroit, Mich.

Give practical instructions for installing a motor in a canoe, calling attention to the factors that must be considered and the problems that must be solved.
Suggested by Chas. S. Jones, Lafayette, Ind.

Answers to these questions, addressed to the Editor of MOTOR BOATING, 1789 Broadway, New York, must be: (*a*) In our hands on or before August 25th, (*b*) not over 500 words long, (*c*) written on one side of the paper only, (*d*) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired).

Questions for the next contest should reach us on or before the 25th of August.

THE PRIZES ARE:

For each of the best answers to the questions above, *any article* advertised in MOTOR BOATING, of which the advertised price does not exceed $25, or a credit of $25 on *any article* advertised in MOTOR BOATING, which sells for more than that amount.

(*There are three prizes, one for each question, and a contestant need send in an answer to but one, if he does not care to answer all.*)

For each of the questions selected for use in the next contest, *any article* advertised in MOTOR BOATING, of which the advertised price does not exceed $5, or a credit of $5 on *any article* advertised in MOTOR BOATING, which sells for more than that amount.

For all non-prize-winning answers published we will pay space rates.

When you send in your answer, state what you will take if you win the prize.

The Jury Rudder and How It Works.

How a Boat May be Steered to Port in Case of a Broken Gear. Devices Improvised From the Equipment of the Ordinary Boat.

THE PRIZE CONTEST—Answers to the First Question in the June Issue.

The Drag—A Simple Device.

The Prize Winning Answer.

IT is assumed that the rudder and every part of the steering apparatus has been made useless by the breaking of one of the vital parts, and the following suggestions are based upon the equipment usually found on a motor boat. The Jury rudder must, of course, be simple and made of such material as can be found on even the most poorly equipped boat. It should be remembered that it is not at all an uncommon thing for some part of the steering gear to give way during rough weather and, therefore, it is not an unwise precaution to try the gear out in ordinary weather so as to be familiar with its working in case of emergency.

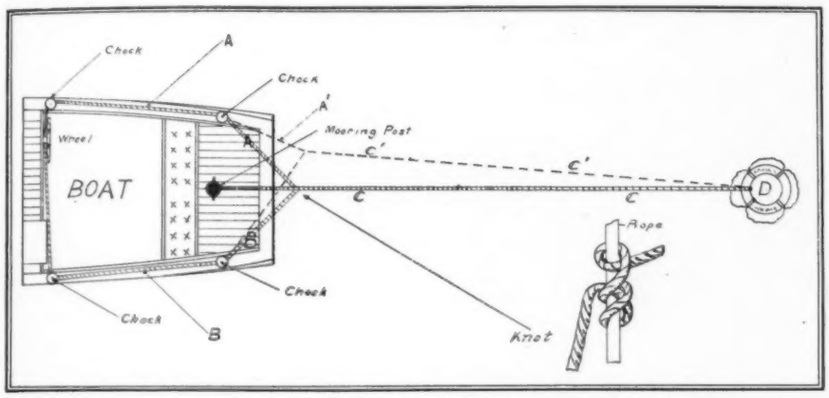
The entire rig consists simply of a strong rope from 150 to 200 feet in length and a life belt, locker seat or some other drag. One end of the rope, and by the way, the anchor line with which every boat should be equipped, may be used for this purpose, is fastened securely to the stern bitts or some other convenient place on the center line of the boat. The nearer the point of attachment is to amidships the more efficient will be the rig. Several feet behind the fastening (not less than 2 feet) securely fasten another rope of about the same diameter, the ends of which should be chocked to either side of the boat as shown in the figure. A knot similar to the one shown is recommended as this will not allow the ropes to slip upon each other. If practical the ends may be led to the steering wheel and wound around its drum so that the boat may be steered from the wheel as usual. Hauling in on the starboard rope tends to turn the boat in that direction and vice versa.

In the drawing C is the long rope, A-B the shorter rope and D is the life belt or piece of wood. When it is desired to turn the boat toward the right A should be pulled, which will bring C to the position C'. A will take the position A'.

The length of the rope C will vary according to the size of the boat, but should not be less than 25 or 30 feet. Generally speaking, the longer C is, the better the boat can be steered. The size of the drag also depends upon the size of the boat, and if any difficulty is experienced in getting the boat to respond it is an indication that the drag is too small, in which case either the line C should be lengthened or the size of the drag should be increased.

This, I believe, is the simplest form of Jury rudder with the exception of an oar or plank, only practical on smaller boats, and its very simplicity may lead some to believe that it is inefficient. Experience, however, has taught me that such a rudder will effectually steer a boat to some safe place where repairs may be made.

M. MOELLER, JR., Hoboken, N. J.



A drag composed of a life buoy towed at the end of the anchor line.

Tender Towed With Bridle.

IN case the boat is too large to be steered with an oar, say over 35 feet in length, she may be steered by towing the tender at the end of a bridle. The tender may have to be weighted, but not too much or it will ship water when under way. The bridle consists simply of the two ends of a rope led from the bow of the tender to chocks on either side of the stern or widest part of the boat at the quarters. As the steering is accomplished by pulling on one member or the other of the bridle, the ends may be led to the drum of the steering wheel, or they may be shifted by hand. The equipment necessary to improvise such a device, therefore consists merely of the tender and anchor line or other rope, part of every boat's equipment.

For smaller boats an oar or the top of a locker secured to a boathook or flagstaff will be found sufficient to guide the boat to her mooring.

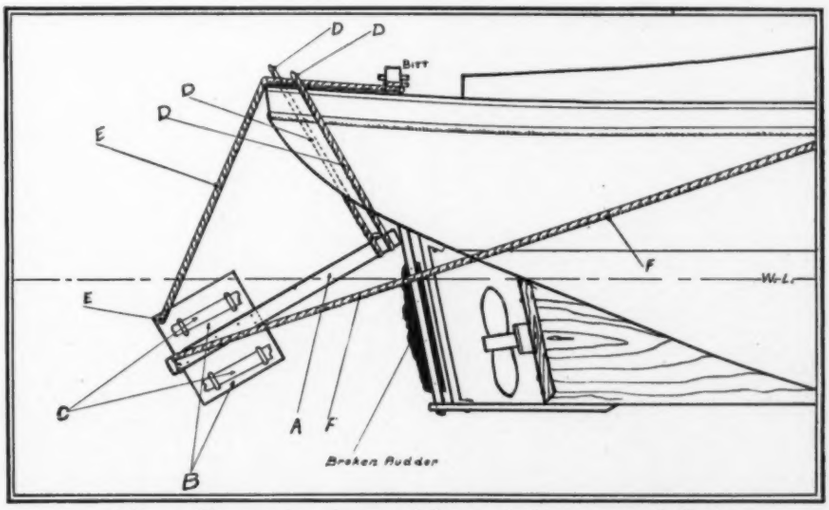
P. W. HILLER, Carbondale, Pa.

Locker Cover and Plank.

THE Jury rudder described below it one that may be used on boats of all sizes, but one that is particularly adapted for larger boats that cannot be steered with an oar or plank. When made fast as shown in the figure, it is practically impossible for this rudder to unship and it will have a steering effect even when the boat is not making headway, as it will get the effect of the water set in motion by the propeller. The materials for the construction of such a device may be found on almost any boat and may be quickly thrown together and set up. The rig consists of the following: a pole or plank about 6 feet long (A); a floor plank, an oar or pike may be used; a flat board such as a locker cover not less than about 2 square feet in area (B); this is nailed, screwed or fastened in some way to the pole, A, in such a manner that three or four inches of A stands beyond it; a weight, such as ballast iron, a small anchor or anything heavy enough to keep B under water (C). The weight may be attached to the board either by lashing through holes or by driving nails close to the weight and clinching them. After A, B and C have been thus fastened together two ropes (D) are made fast to A as shown in the figure, by means of some style of knot that will not slip. E is a rope made fast to B, either through a hole in the latter or by the use of nails. E may also be fastened to the end of A, extending beyond B. Two ropes (F) are also made fast to the end of A as shown.

The Jury rudder is set up in the following manner: The combination of A, B and C with the ropes attached, is hung overboard under the stern. The long end of A is made to rest and butt against the rudder post. The ropes D are then made fast (one on each side) *with a slope backwards.* This will prevent the rudder from slipping ahead. Rope E is made fast on the center line of the boat *with a slope forward.* This prevents the rudder from slipping back. The length of rope E should be such that the rudder plate B is submerged. The ropes F, one on each side, should be carried to the middle of the boat. The ropes F may be chocked to, and wound around the drum of the steering wheel, and the boat may then be steered with the wheel.

M. MOELLER, JR., Hoboken, N. J.



A jury rudder may be constructed from a locker cover and plank.

Vertical Pole and Line.

WITH the rudder lost or jammed a jury rig is necessary. In small boats an oar lashed to the aft cleat will do. If there are no oars make one by lashing a seat to a boat hook or flag pole. In large boats a drag or sea anchor makes the simplest rudder. Any of those described in the April or June numbers of MOTOR BOATING will do nicely, though, of course, the drag does not need to be so large when used for steering. The anchor cable trailed aft will answer in calm weather. The drag is fastened to a bridle made of two rope falls. The inboard ends of the falls are made fast to either end of the transom, or in case of a pointed stem, on each side at the widest part near the stern. Taking up one tackle and paying out on the other carries the drag to one side or the other and pulls the boat around as the rudder would.

However, motor boats unlike sailboats do not usually have falls and tackle handy. The following method is not so easy to handle but works a good deal quicker. Carry the line from the drag well forward and make it fast amidships (say to the riding bitts). Lash one end of an oar, boat hook, or flag pole in the center of the aft deck or near the aft end of the cockpit. Lash it firmly yet allow the pole to be swung from one side to the other by raising it into an upright position and dropping it down on the other side (twisting around will not answer). Lash the line from the drag to the outer end of the pole. To steer use the pole as though it was one spoke in a big wheel. When the pole is upright the drag should be fore and aft, while allowing it to lean to one side or the other forces the drag line with it and turns the boat. The strain of the drag is taken by the forward fastening of the line, and the strain on the pole (which is simply a spreader) is taken by the lashing and floor. If the drag line is fastened well forward it is surprising to see how easily it may be shifted from side to side. It is well not to let it go way down on either side as the foot of the pole is likely to "kick."

An ounce of prevention is worth a pound of cure, however, therefore provide means for a tiller as well as a wheel. The majority of motor boats are steered with a wheel and quadrant under the after deck. An emergency tiller can be easily provided by running the rudder post up through the aft deck. As two or three inches above the deck is sufficient it does not mar the appearance or interfere in any way. The rudder post which is of course a round iron bar is squared under the deck where the quadrant comes, and also for two inches or so at the top above the deck. A snug collar of hard wood is fastened to the deck making a bearing for the upper end of the rudder post, and stopping any leakage. Moreover, with this upper bearing the rudder will still work should it become unshipped or the skeg broken.

The emergency tiller has a square socket in the bottom of the shank which should be deep enough to allow it to go down over the rudder head the entire distance of the square part. The shank and rudder head may be drilled for a pin if desired, but if the square is made at least 2 inches long this is not necessary. The shank must be long enough to bring the tiller above the top of the "lazy back" or coaming. The shank and tiller which can be any desired length, should be one solid forging, galvanized, and placed under the after seat of the cockpit *and left there.*

WM. GEO. ALLEN, Portland, Me.

Several Methods.

IN considering a break-down to the steering gear which renders it necessary to devise some temporary means of bringing the boat home, I shall assume that there is only the usual assortment of tools on board. These, of course, are wrenches, etc., most closely associated with the engine, and possibly the only strictly wood-working tool to be found aboard will be a jack-knife reposing in someone's pocket. This would leave it almost impossible to construct very much of a rudder even if we had the required lumber. However, I will describe a make-shift affair that might be used under favorable conditions of wind and sea.

Rip up the widest of the bottom boards and with the help of the hammer break it off the required length, having it too long rather than too short. With the jack-knife cut two holes in one end near the corners, and one hole in the other end near the middle. Pass a line through the single hole and make it fast, leaving the ends long enough to come inboard after the rudder is in place. Then lash the board loosely to the rudder post, bring in the ends of the line which was fastened to the single hole and make them fast to your tiller ropes when you will be ready to get under way again and still use the steering wheel.

The hard part of this scheme is fastening the board to the rudder post, and it may be necessary to send one member of the party overboard to do this.

Of course if a pair of oars is on the boat one would usually turn to one of them upon the loss of the rudder and use it as a sweep over the stern for steering.

Another method would be to tow the bight of a line, the anchor cable or any other line handy, and steer with that. To steer in this manner let the line out over the stern, keeping both ends on board and by shifting it from side to side the course of the boat may be directed. The loop let out should be about two or three times the length of the boat. Too much line will be a hard pull and too little will not control the boat. The steering may also be helped by having your live ballast move from side to side according to which way you wish to go, having it all on the port side when you wish to go to port, and on the starboard side when you wish to go to starboard.

F. M. COMEE, Cambridge, Mass.

Mixing the Fuel and the Lubricant.

Is the Popular Practice of Putting the Oil Into the Gasoline Tank a Good One? All Phases of This Question Discussed by Those who Have Tried It.

THE PRIZE CONTEST—Answers to the Second Question in the June Issue.

Mix Before Putting in Tank.

The Prize Winning Answer.

THE method of lubricating a two-cycle motor by dissolving the oil in the gasoline seems at first sight to be so simple in comparison with the more elaborate schemes which have been devised, that it struck me at first as being too good to be true. After trying it out, however, I find that my particular motor (two-cylinder, two-cycle) runs better when using the method in question than when using oil cups on the cylinders and splash system in the base.

Now as to how and why it works. In the first place the term "mixing" the oil and gasoline is erroneous, as the oil really forms a solution in the gasoline in a similar manner that sugar, salt, sal soda or any soluble compound dissolves in water, and so long as there is gasoline present, the oil will stay in solution the same as salt, etc., will. But when the gasoline is evaporated the oil is left absolutely unchanged, the water solutions resembling the gasoline solutions in this respect also.

In order to obtain the best results, however, it is necessary to have the solution of the oil thorough and uniform throughout the entire body of gasoline. To accomplish this, I find that the best and quickest method is to take a five-gallon can of gasoline and a two-quart measure containing one pint of oil and add about one quart of gasoline to the oil, stir until the oil is dissolved and then add the solution to the main body of gasoline, when the whole can be either stirred or shaken together. The fuel is then ready for the tank.

This mixing is very important, and if the oil is poured into the tank, being heavier than the gasoline, it will settle to the bottom, when it is a very hard matter to make the whole lot of uniform composition.

The fuel being prepared, the next operations must be surmised, as they all take place inside the carbureter and engine.

When the piston is at its highest point and a change of fuel drawn into the base, part of the gasoline is vaporized, leaving the oil which was dissolved in it smeared on the parts inside the crank case. As this process is repeated the oil collects on the connecting rod and runs through the hole usually provided on the bushing into the bearing, thus oiling the bearing most difficult to get at. When the piston has reached its lowest point and the charge enters the cylinder, part of the oil is carried in and deposited on the walls and top of the piston. As the piston rises on the compression stroke some of the oil enters the wrist joint, thus completing the lubrication of all the inside working parts of the motor with the exception of the crankshaft bearings, which must be taken care of by the compression grease cups as usual.

There can be no doubt about the efficiency of the method for oiling the piston, as it has been the practice for a number of years to feed the oil with the steam in steam engines, and as for the crank case I find that after running about a month the connecting rod bearings show no perceptible wear. Some of the oil must burn in the cylinder, of course, but the walls are oiled and the piston covers them up before the explosion takes place, so there can be no fear of failure on account of this point. Gumming of the carbureter valve is but a small consideration compared to the advantages of this method.

After trying the method it seems to me to be the most rational and convenient that could possibly be devised for lubricating a two-cycle motor, and it is very well worth trying out.

F. H. MALONEY, New Haven, Conn.

Preserves Bearings.

THE experience of boat owners who have tried out the system of lubrication by mixing oil with the gasoline has conclusively proved that it is an excellent method. In every case of which I have heard the system is a success.. Motors which have been difficult to lubricate by any other method have in this way run with less wear, more smoothness, and in some instances with greater power. One man states that under the old regime he wore out three sets of crankshaft bearings. The next summer, having tried the new meth-

od and discarded the old oiling system entirely, he found that the bearings put in at the beginning of the summer were as good as new at the end. Many others also find it necessary to re-babbitt their crankshaft and connecting rod bearings at least once or twice during the season. With this arrangement, however, this inconvenience has been done away with and the parts have been kept in perfect condition. In brief, I know of no case in which this practice has failed.

The efficiency of this system is due to the fact that there is an even distribution of oil to all working parts. With the usual means of oiling, the wrist pin and connecting rod bearings are hard to lubricate. The gasoline vapor has a tendency to cut the oil from the surfaces, leaving them dry. Thus without a steady and positive supply of oil the bearing may be destroyed. With the new way, on the contrary, that of mixing oil with the gasoline, the oil enters the cylinder in the form of a fine mist or spray along with the gasoline vapor, depositing small particles of oil all over the inside. Thus pistons, wrist pins, connecting rods, piston rings and crankshaft receive a plentiful supply of oil, varying directly in proportion with the speed of the motor.

The method is briefly this: Take one pint of oil to every five gallons of gasoline. Put the oil into the chamois skin used for straining the gasoline, and pour the gasoline through the oil, thereby washing the oil through the chamois. This ensures a thorough and permanent mixture of the two liquids.

On the whole this system has everywhere proved successful; it provides an efficient means of lubrication and requires no care or attention on the part of the operator, and so can be highly recommended.

G. G. T., Ithaca, N. Y.

Amount Varies with Speed.

I HAVE tested the method very thoroughly under all possible conditions on a two-cylinder high speed motor and have found it perfect in every respect. This method of oiling is no longer an experiment but is in use by thousands of motor boat owners, and everywhere is giving the best of satisfaction.

The oiling systems used by the various engine builders will all lubricate satisfactorily as long as they work all right, but right there is the difficulty. Careless engineers are pretty sure to let their oil reservoirs run dry sometime or another, and even the most careful cannot prevent the oil leads from becoming clogged occasionally, especially when the engine is mounted under a hood and the sight feed glasses are not visible. It takes only a few moments to ruin a cylinder or a bearing when the oil supply is cut off, therefore it is of the utmost importance to know that we are getting oil all the time. When the oil and the gasoline are mixed we do know this, for the gasoline cuts the oil and holds it in suspension perfectly; so as long as the engine gets gasoline it is sure to be getting oil.

There have been many ingenious systems worked out to conduct the oil to the crank pin and wrist pin, but I do not think any of them are of any value, for I do not believe it is possible for oil to exist in a liquid state either in the cylinder or the crank case of a two-cycle engine. To convince yourself of this, open the relief cock, which is usually found at the lowest point in the crank case, when the engine is running, and you will find there is no oil there. Instead there will be a kind of mist blow out. Hold your hand in this and you will find there will soon be a light film of oil deposited. This is the form in which the oil exists inside the engine. The agitation caused by the rapidly moving parts is so great that as soon as a drop of oil is fed in it is immediately broken up into very fine fog-like particles. These particles are deposited on any surface with which they come in contact and the lubrication is effected in this way.

If this theory is correct, and it seems to be borne out in practice, then the oil and gas mix inside the engine anyhow, so why not mix them before they enter? Another argument in its favor is that the proportion of oil to gasoline can be absolutely predetermined; that is, the amount of oil fed is practically the same for each revolution and varies directly as the speed of the engine, and is in no way affected by the temperature. This is true with no other system with which I am familiar.

To sum up, then, the method possesses the following advantages: It is effective, positive, amount varies with the speed of the engine, not affected by change in temperature, and last but not least, does away with unsightly oil cups and the trouble of filling them.

H. J. MASTENBROOK, Bay City, Mich.

Not Advisable.

FOUR years ago I installed an oil cup between the vaporized valve and the engine bases on a 3-inch by 4-inch two-cylinder engine. I had rigged on this engine a prony brake and was able to test this method of lubrication as to its details. My results, notes, etc., follow.

It is decidedly bad practice to lubricate through the vehicle of the explosive mixture; it reduces the power of the engine. With the aid of the brake, I determined that there was a decided loss of power on damp days, amounting to about 9½ per cent., while on clear days it amounted to about 5 per cent. I attribute this loss to the presence of oil in this mixture. My theory of this result can be illustrated by three squares.

A, the large one, represents a given quantity of air. G represents the fixed proportion of gasoline which is added to A to produce the proper explosive mixture for the engine. O, the smallest square, represents the proportion of oil which is added to A and G.

Consider the cambinations; A is a necessary factor to produce the explosive mixture, as also is G. O is not. To produce explosive results, add A and G. This represents a perfect mixture. If we had more air it would thin the mixture and result in weak explosions; more gas would make it too rich. This proportion is fixed.

O will not mix with A. G will not mix readily with O on account of the great difference in specific gravity.

To demonstrate the reduced carrying capacity of the air with the oil added, we will resort to a few figures. We will say, for example, that there are nine parts air to one part gasoline required to produce the ideal combustive mixture. This is fixed. Oil is added to these ten possible parts. (Understand this proportion cannot be varied; it would change the degree of combustibility of the mixture.) One part oil is now added to the possible ten. This one part will displace a portion of our mixture; it will move the lighter element, the air; therefore we have a mixture which will be too rich.

As for the oil that reaches the engine, I will say that it is practically vaporized, and being in such rapid motion it has no chance to settle on the bearings.

Being so finely broken when it reaches the engine, its efficiency is partially destroyed. Being comingled with the explosive charge, it is readily burned, hence carbon is produced on the firing chamber walls. Machinery should be lubricated by direct and positive methods—this is neither positive nor direct, therefore it is bad practice.

M. E., New York City.

Advantages Overbalance Disadvantages.

TO be good practice any plan must possess the features of being good for the engine as well as for the engineer. With these points in mind, it was with decided hesitancy that I adopted the method of oiling by putting the oil in the tank.

The engine is a three-port, two-cycle, two-cylinder, 3 h.p. of semi-home construction and runs at about 600 r.p.m. The engineer is not a professional machinist, knows little about theory, but enjoys the music of a smooth running engine.

For two years the engine has been oiled by oil cups, the one to the cylinder, just outside the intake, and dropping into gasoline vapor. Twenty-four drops a minute were found to be about right when all was well, but often for some reason it was found that one cylinder robbed the other; one would run dry while the other would foul with oil in a short time. This seemed to be the only mechanical defect of this system, as two years' running showed little wear.

One pint of oil to five gallons of gasoline in the tank was proposed by a fellow boatman, and it was adopted some five months ago. Rough water keeps all well mixed, and an examination recently found all surfaces in excellent shape, a little lack of oil in one crank case being the only defect.

The carbureter troubles have increased, however, as the needle valve will gum up, a gasoline strainer in the line is apt to clog a little, and the engine starts decidedly harder, but against all this a small gain in r.p.m. is noted, the engine runs much smoother, plugs are seldom fouled, gasoline turned off means oil turned off, and a cleaner boat and a decided drop in gasoline consumption is noticed.

While the theory in this matter is not known, I have surely found this method better than oil cups in enough ways to offset the few disadvantages, and if the engine in the fall will show up as well as now I shall continue its use.

E. V. LAWRENCE, Pittsburgh, Pa.

One Pint to Five Gallons.

A FRIEND of mine bought an old style high speed engine of the two-cycle type. The connecting rod bearing burned out repeatedly. No oiling device seemed to stop it, and he had a lot of bearings run from babbitt, and carried them at all times. He had use for them, too. One night he broke off the oil cup throwing a paddle out of the way and, being unable to fix it, we plugged the hole and put in about two quarts of lubricating oil with the gasoline. There were ten gallons of gasoline, and it is well to say that he never used an oil cup after that. He found that for good results he needed just one pint of oil to every five gallons of gasoline. He doesn't have to put in a new bearing every week either, and he is going to use the same system on the new two-cylinder engine he is about to put in.

I have a speed boat, and always put in one pint to every ten gallons of gasoline. Running long distances I find that I never have any trouble. Besides this, I use the force feed oiling device furnished by the company, and use as near as I can to eight drops per minute to each cylinder crank and crankshaft bearing. The machine is a three-cylinder, 5-inch bore by 5-inch stroke, high speed Fox.

We can see by mixing a bit of oil and gasoline that there is no settling, and no scum of any kind; it is merely colored. For this use I prefer a good thin oil, as it mixes more readily. Another thing of importance is the fact that an engine at the speed of 200 r.p.m. naturally does not require so much oil as when it is running at 900 r.p.m. With the ordinary force feed or gravity—unless one is continually making adjustments—engines often smoke and get the plugs coated from an excess of oil, when the engine is slowed down for any length of time. Oil used in with the gasoline is also a great benefit in running at night, when even with a good light it is often difficult to ascertain just how fast oil is dropping.

When the oil is placed in with the gasoline, it is used at the same ratio as the gasoline, not a certain number of drops per minute at all speeds.

H. J. K., Schenectady, N. Y.

Recommended by Makers

WE have known about the practice of putting the lubricating oil into the gasoline tank for about seven years, out here on the Pacific coast, and personally I have heard it well spoken of in every instance where it has been tried. The Foss Boat House of Tacoma, Washington, have a number of lively launches and formerly had a number of their engines injured by careless handling, as it seemed impossible for the inexperienced persons handling the boats to see that the engines got the right amount of oil. They adopted the practice of putting the oil in the gasoline drums which eliminated this trouble, as when an operator has gasoline he is bound always to have lubricant. They have followed this practice now for seven years, which is pretty good evidence of its success.

Charles E. Duryea has been doing the same thing for three years with his automobile engines and still recommends it. The Eldridge Engine Company followed this practice with their engines and also recommend it.

The best proportions are probably one gill of lubricating oil to one gallon of gasoline. The oil reaches every part of the crankcase and cylinder walls and hence oils better than any other system of oiling could do. Another argument in its favor is that because the oil is mixed with the gasoline the latter will not cut it from the surfaces to be lubricated, as is apt to be the case when it is introduced in the raw state.

There are of course minor disadvantages with this practice, such as occasional gumming of the needle valve in the carbureter, etc., but the numerous advantages, such as uniformity, simplicity, etc., a great deal more than overbalances them and are sufficient argument for its adoption in connection with two-cycle motors.

GEO. H. HUTCHINGS, Hoquiam, Wash.

Use Good Oil.

PERSONALLY I consider the practice of putting cylinder oil in with the gasoline an excellent one. This past winter and spring I have tried it on at least fifteen different engines, and so far none of them have returned to using the oil cups. There is a slight difference in engines regarding the amount of oil required. As a general rule one pint to five gallons of gasoline will give good results, but on a few occasions where the bearings are very small for the power of the engine it has been necessary to increase the amount of oil to one and one-half pints to five gallons, which, however, is less than the same engines used with any other method.

Of course, it is understood that one must use a good grade cylinder oil, the same as used in the oil cups, and not think any old oil will do, simply because it is mixed with the gasoline.

JOHN W. RANKIN, Camden, Maine.

Novel Events for Regatta Day.

A Number of Features Suggested to Relieve the Monotony of the Usual Speed Contests. How the Club Day Program may be Made More Interesting for All Concerned.

THE PRIZE CONTEST—Answers to the Third Question in the June Issue.

Condensed Cruising Race.

The Prize Winning Answer.

THE following description is of a novel race, which may be termed a "Cruiser's Efficiency Race," and which entirely obviates the necessity for time allowance, since even the slowest boat stands a reasonable chance of winning the event. The start, the finish and the most exciting features are all in plain view of the spectators upon the club house piazzas and about the yacht club grounds.

The race should be open to cruising boats only. Each entry must tow a tender. At the starting gun the boats will cross a line as near the yacht club house as practicable and run to another imaginary line between two range marks or buoys placed at a distance of quarter of a mile from the start. Between these buoys the boats will come to anchor. After anchoring one of the crew of each contestant will enter his tender and, rowing back to the yacht club float, take on board two 5-gallon cans of gasoline. For convenience, these should bear the number of the contestant. He will now row off with these to the cruiser and the gasoline should be emptied into her fuel tanks. The tender must now return with the empty gasoline cans and leave them in charge of an official upon the club float.

After delivering the cans the tender will row out to the cruiser, which still remains at anchor. When the tender comes alongside, the rode line should be transferred to the small boat which is left moored on the anchorage line, while the cruiser immediately gets under way and proceeds over a prearranged course of three miles round a mark boat and return to the anchorage line where each contestant stops long enough to pick up her own tender, then weighs her anchor and makes for the finish line.

Of course, the first boat to cross the line after fulfilling the conditions of the contest is declared the winner. It will be seen that the actual speed of any entry is not a vital factor in this race since unnecessary delay in handling the gasoline, dropping or weighing anchor, picking up the small boat, etc., will easily loose enough time to put even the speediest contestant hopelessly out of the race, while a good oarsman will be able to do much toward securing the victory for his craft.

In our contests speed is likely to be the one and only consideration that is deemed important. In a contest, however, such as the one above described, a premium is placed upon skill in handling the boat and in performing all the functions of a real cruise. In other words the personal element is of quite as much importance as the performance of the boat and engine.

ALLAN O. GOOLD, Portland, Me.

Novelities for Club Day.

ASIDE from the serious business of a Club Day, which, of course, will be the races of the different classes, we all like a little something to cause a laugh, on the principal that "A little folly now and then is relished by the wisest men." I would suggest a short course just in front of the club house where your guests may enjoy the events from the piazza.

First, I would have a slow race, which will cause quite a bit of fun, particularly if there is any current or breeze. Give the contestants a preparatory gun, and five minutes later the starting gun. In the meantime let them be getting their engines down as slow as possible and jockeying for the start.

The course should not be very long and should have a well defined width. Fouling of the contestants, stopping the engine or getting out of the course should all count against a boat and the boat finishing in the longest time and with the fewest marks against her is the winner. Reversible propellers should be sealed on their high speed so they could have no advantage over the solid ones.

Another event that might cause some amusement should be to have a race between toy boats, with either clock work or steam engines, such as may be purchased at any up-to-date toy store, the owners following their respective craft in skiffs. The boat which finished with the least attention and in the shortest time beng declared the winner of the event.

Getting off the water and coming to a part of the programme dear to most of our hearts, I would suggest a novel form for the luncheon sandwches. Have a lettuce sandwich cut the shape of the deck plan of a boat, on the left side place a radish, on the right an olive, to represent the port and starboard lights, and you will have a small, one-design class which, I think, the club will find very popular.

F. M. COMEE, Cambridge, Mass.

Miniature Motor Boat Race.

AS for a competition for the program of a water carnival or club regatta, I should think that it would be both interesting and instructive to hold a race of miniature motor boats.

There may be several races, each being for a different type of boat. I should suggest four feet as a good overall length for the boats. Although power may be obtained by a small steam engine, an electric motor would be the more desirable because of the greater power it can supply for its weight and the easiness with which it can be installed. The axle or rod passing through the center of the armature may be removed and a longer one be replaced for the propeller shaft.

Either dry cells or storage batteries may be used to run the motor. Ten-ampere storage batteries of two volts would be better than dry cells, because dry cells deteriorate more rapidly and storage batteries of this size would weigh no more than the dry cells sufficient to supply the number of volts required.

Such a motor boat could be made to weigh no more than fifteen to twenty pounds. This would enable the competitors to carry out personal ideas as to the construction of hulls, means of power, etc.

CHARLES J. REESE, Buffalo, N. Y.

A Mooring Race.

A NOVEL and most amusng contest, both for the spectators and contestants, for a carnival of motor boats is what might be termed a mooring race.

The committee in charge should prepare two boards, about 1 ft. by 2 ft., for each contestant and paint numbers on each side of the boards. These boards are then carried about one mile away from the club anchorage and put out adrift in a radius of 250 or 300 yards. When this has been done the race should start and the contestants are started from the club float or wharf in their tenders and should go out to their boats, which should be at their mooring with engine stopped, start engine and get away as they would ordinarily and pick up the boards with their numbers, then back to their moorings and bring the boards back to the starting point. Of course, first one back with correct numbers wins race.

This is not only interesting and amusing, but is good practice.

W. HERBERT SLOAN, Baltimore, Md.

To navigate the shallow, turbulent Alaskan streams, Explorer was built with a tunneled stern.

Explorer, for Mt. McKinley Expedition.

WHEN the Parker-Brown Mount McKinley Expedition left Seattle for Alaska they took with them Explorer, one of the most interesting power boats that has ever been built on the Pacific coast. Ever since the introduction of the gasoline engine there has been a steady fight to devise a small power boat that would be able to fight its way through the turbulent, shallow streams of the Northwest.

There is a heavy winch on the forward deck.

The use of the tunnel stern seems, however, to have solved the problem. When Dr. Frederick A. Cook outfitted in Seattle for his famous trip into the Mt. McKinley country he took a tunnel screw gasoline boat which was built by the Tregoning Boat Co., of this city, and was a success. This boat was 40 feet long with a beam of 6 feet and drew 14 inches of water. It was fitted with a 25 h.p. engine.

Explorer measures 41 feet over all, 7 feet beam and 24 inches deep. In order to keep the draft down to the lowest possible amount a heavy keel was dispensed with, a 3 x 4 Douglas Fir laid flatways, doing duty instead. This, however, is strengthened by two 3 x 4 stringers which combine to give all the stiffness that is needed, this, with 1 x 1½ inch steam bent oak frames spaced on 12 inch centers and one inch fir planking copper fastened give a hull that is strong enough to carry engine and cargo safely, yet at the same time to give a springiness that is not to be despised in a shallow draft boat.

The power plant of Explorer consists of a two cylinder Remington kerosene engine with a normal rating of 18 h.p. This engine on a brake test, however, is said to have developed 27 h.p. The engine is fitted with an efficient reverse gear and a 24 inch, four-bladed wheel. Owing to the extreme light draft two rudders are used. These are handled by means of a steel cable and a steering wheel located on the coaming forward.

As most of Explorer's work is to be done on a heavily timbered stream, that is filled with innumerable sand bars, rocks and driftwood, making frequent landings necessary, no deck house or cabin was built, a canvas storm hood stretched over gas pipe frames serving instead. In order to facilitate the passage of some of the worst rapids, Explorer was fitted with a very heavy winch and steel cable that in a pinch would be strong enough to pull her bodily over a sand bar. Fuel tanks of 150 gallons capacity with a complete line of extra engine parts that are liable to breakage and a complete kit of machinist's tools make up the equipment of the outfit.

Thirty minutes after launching, Explorer's engine was running like a watch, carrying eight men and all equipment at a speed of over 12 miles per hour. With five tons of cargo her draft is only 18 inches. After her trial Explorer was placed aboard the steamer Portland and taken to Seldovia, Alaska, where she was unloaded and run to Cook's Inlet. There she will begin her arduous work of carrying supplies up Cook's Inlet and the Susitna and Chultina Rivers to the base camp that will be established forty miles from the summit of Mt. McKinley.

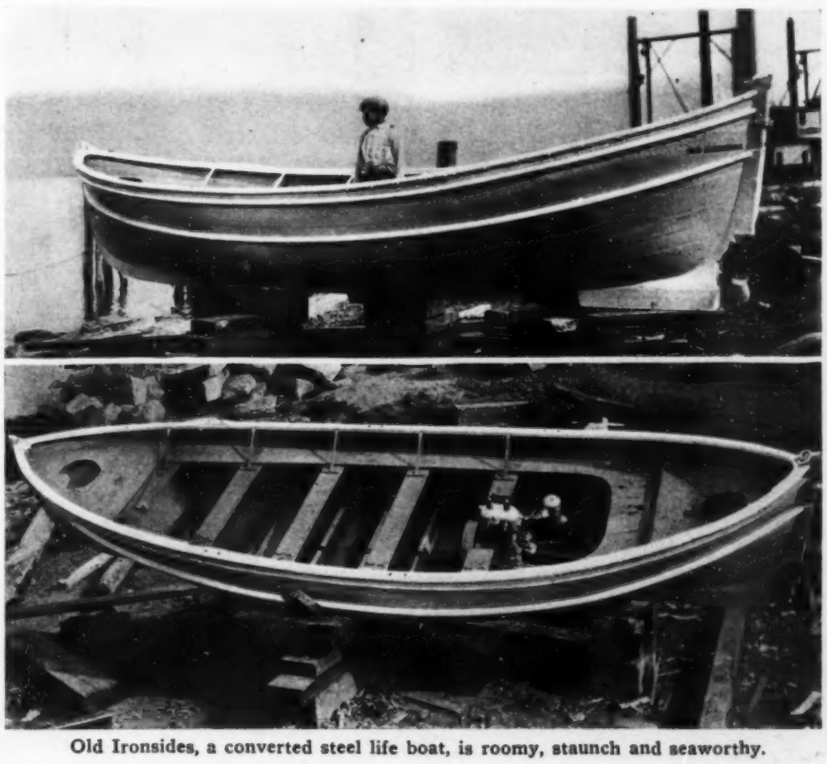
The members of the party are Prof. Herschel C. Parker, of Columbia University; Belmore Brown, of Tacoma, Wash.; Prof. J. H. Cuntz, of Stevens Institute, Hoboken, N. J.; all members of the National Geographical Society; Herman L. Tucker, of Newton, Mass.; and Waldemar Grassi, of Columbia University, with an engineer and two packers. It is expected that the party will finish their work in September of this season.

Old Ironsides, A Converted Lifeboat.

THE life boats carried on most of our larger sail and steamships, for a number of years, have been constructed of galvanized steel. It has been found that after a few years the bottoms and bilges of these boats frequently become rusted through, making them useless for life saving purposes, while the stem, stern, keel and top sides remain as good as new. To patch these places is almost impossible as the rust extends widely. There are many of these discarded boats about, which would make good motor boats if they could be repaired, as they are good sea boats and very roomy.

Old ironsides, shown in the illustration, is one of these boats. She is 22 feet in length, with beam of 6 feet and depth at bow and stern of 4 feet 5 inches. She had seen twenty years' service on one of the Hudson River steamboats and her bottom was nearly gone when work was started upon her recently at Newburgh-on-Hudson. White oak fashion pieces were bolted to stem and stern and a white oak keel in two pieces was bolted in place. The old bottom was given a coat of red lead and was then planked over with ⅞ inch cypress planking. As there was nothing to fasten to, an apron was put in forward and one aft besides floor timbers. The planking was carried up to within 14 inches of the coaming, the half-round in the illustration showing the upper limit.

A 9 horsepower, double cylinder Lackawanna reversible motor was installed near the stern and drives her at the rate of ten miles an hour. It was not found necessary to alter the interior arrangement, as will be seen by the illustration. It took ten days to complete the work on Old Ironsides, and a stiffer, more seaworthy or cheaper motor boat could not be produced.



Old Ironsides, a converted steel life boat, is roomy, staunch and seaworthy.

During their trial trip on the Hudson, the Three Twins attained twenty-five miles per hour with but very little disturbance.

"Three Twins"--Fifty-Eight Footers.

THESE boats, which are known collectively as "The Three Twins," and individually as Romp, Pampero and Scallywag, and which were built by the Reliance Motor Boat Company, of New York, left their pier at the foot of 210th Street at Spuyten Duyvil, late upon the afternoon of July 2 for Bar Harbor, Maine, where they will race during the summer.

An interesting fact in connection with the construction of these three craft is that all were built exactly alike, work upon each was commenced at the same time and the last hook for the storm curtains for each boat was put in place almost at the same moment just before leaving for Bar Harbor. Not until the boats were put overboard was it decided to which of three people the three craft would belong. The names of the future owners, Mr. Edgar Scott, Mr. Clement B. Newbold and Mrs. Francis S. Mitchell, all of Philadelphia, were placed in a hat after the boats were launched and the selection of the owners was decided in this manner. As a result, Mr. Scott will handle the wheel of Romp, Mr. Newbold of Pampero and Mrs. Mitchell of Scallywag.

The boats are 58 feet in length, are of selected mahogany throughout and each boat is equipped with two 75-90 h.p. Mercury motors driving separate propellers and giving a guaranteed speed of 24 miles per hour, although this has been exceeded by fully two miles since the trial runs upon the Hudson. The beam of each boat is 7 feet and the draft is 2 feet 4 inches. As can be seen from the photographs taken upon the day previous to their departure for Bar Harbor, the boats are built upon racing lines with transom sterns, the steersman's cockpit being forward to the rear of a long flush deck, and the engine cockpit aft, bringing the motors almost amidships.

The motors are installed amidships.

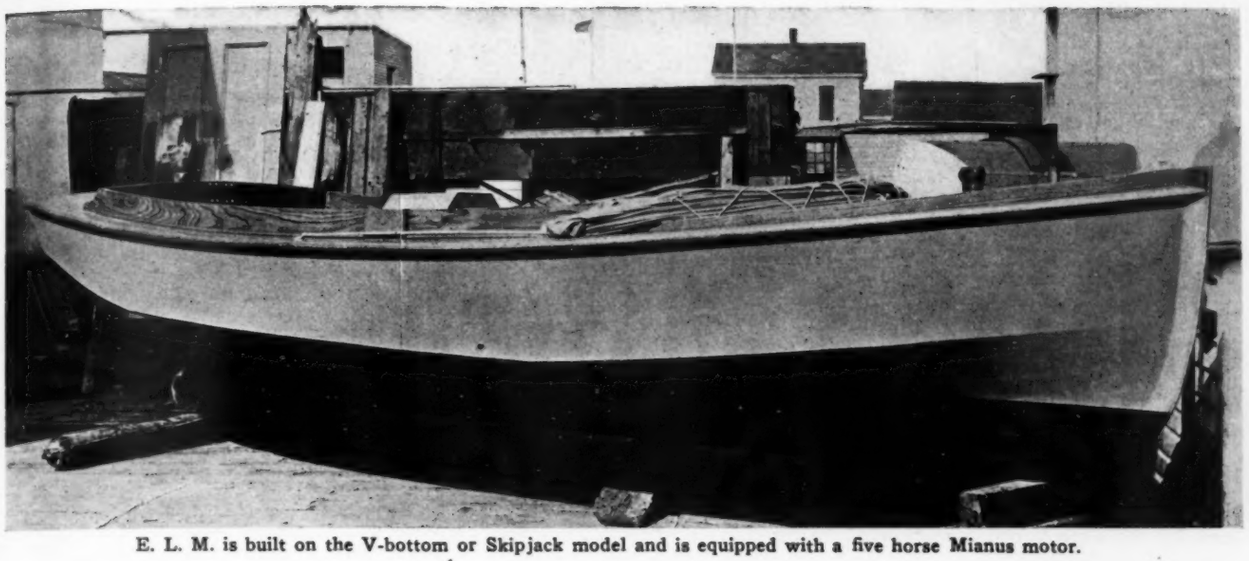
Although the boats are, strictly speaking, open boats, awning stanchions are provided over the forward cockpit and a collapsible top protects the space between the after deck and the engines, the latter being covered by hinged doors which may be raised. Each of the motors has six cylinders with a 6 inch bore and a 6½ inch stroke and is equipped with the Atwater Kent Ignition system and a special oiling system. Two large oil tanks are located beneath the floor of the engine cockpit. The boats are electric lighted throughout from a Truscott single cylinder lighting outfit and a 9 inch, 2,200 candlepower electric searchlight, located upon the extreme bow is operated by a wheel from the steersman's cockpit. A binnacle with liquid compass, two sets of engine room signals, one for either motor, a Klaxon with long projector, and a Nicholson Speed Indicator complete the equipment of the forward end of each boat. All the decks are covered with heavy rubber matting and when the boats are in cruising trim a 12 foot bright finished dinghy is carried lashed to the after deck of each craft.

Although these "Three Twins," as their builders still call them, did not start until late in the afternoon and had had trials of but a few hours upon the Hudson, consisting principally in manoeuvering for the benefit of a photographer who had taken his position upon a barge anchored in the middle of the Hudson, they ran into New Haven Harbor abreast upon the night of July 2 at 25 miles per hour. They anchored here for the night. They entered Vineyard Haven at 4 P. M. the next day, and after another stop at Portsmouth, upon July 5th, they arrived at Bar Harbor, running neck and neck at full speed, at 4 P. M. July 6th, where they were greeted by an enthusiastic crowd which had gathered to welcome them to their home port.

The trip from New York to Bar Harbor was uneventful, but the remarkable feature of the journey is the consistent performance of all three boats and the excellent speed which they maintained, averaging as they did for the entire trip between 18 and 19 miles per hour. When it is considered that the engines and bearings were new and that the boats were obliged to run over an outside course for much of the distance, particularly from Vineyard Haven to Bar Harbor, the fact that the trip was uneventful is all the more to the credit of the boats and their crews.

The passengers' cockpit forward is well protected.

The rudders are hung outboard on the transoms.



E. L. M. is built on the V-bottom or Skipjack model and is equipped with a five horse Mianus motor.

Five Hundred Dollar Motor Boats.

The Fourth Installment of the Series "How Much Does a Motor Boat Cost?" Boats Built or Bought for from $300 to $500 and the Engines for Them.

This installment of the "Cost Series" deals with boats that may be bought or built for prices ranging from $300 to $500. Next month we will consider the $500-$1,000 boat, and after that we will continue by stages until the $100,000 production has been reached.

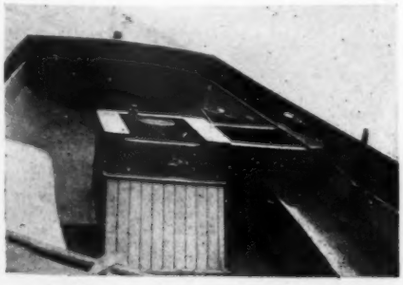
We wish to emphasize what we have said already, that we want the owners and the manufacturers of motor boats and engines to send us at once photographs of the boats and engines that they own or manufacture so that they may be included in this series.

Remember that WE PAY SPACE RATES, the same that we pay our regular contributors for all material used excepting, of course, that sent in by manufacturers. If you have a boat that cost you above $500 send us her photograph and description and do it now.—EDITOR.

E. L. M. was built by William Hale, of Sand Bay, Canarsie, Long Island, and embodies a number of interesting features suggested by her owners, Inspector Andre P. Martin and his son, of the New York Fire Department. The purpose for which she was designed was to act as a ferry between Mr. Martin's boat house at Little Fishkill, Jamaica Bay, Long Island, and the Canarsie shore, and she serves her purpose admirably.

She is 19 feet long by 6 feet, 6 inches beam and is built on the V-bottom principle, commonly known as the skipjack model, with broad stern, which effectually keeps her from squatting when under way. The power equipment is a 5 horsepower, two cycle 1909 Mianus engine, with make-and-break ignition, equipped with Schebler carbureter and Hercules Wizard magneto. The engine is installed amidships, dividing the boat into two compartments with passageway to starboard. This arrangement permits of keeping the provisions, baggage, etc., out of the passengers' cockpit, as the large open cockpit aft has a great capacity. In fact a ton of coal has frequently been carried in this compartment and the following: two fifteen-gallon cans of fresh water, three bushels of coal, two crates of food and a cake of ice, which compose the usual Saturday's load, are always carried in one trip. The forward cockpit has seats on either side and accommodates five persons.

The boat is constructed of oak frames, keel,



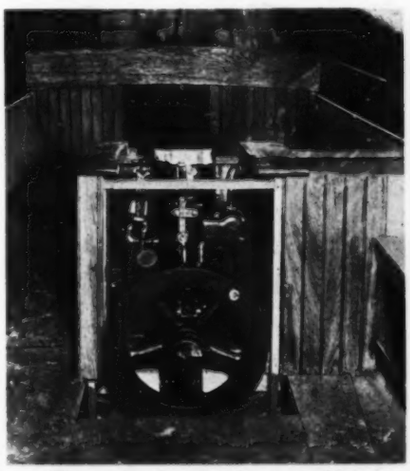
A tiller is placed near the engine.

A Motor Skipjack.

Albert Martin, Brooklyn, N. Y.

skegg, etc., and planked with ¼ inch cedar. The coaming is of oak and the decks and interior finish are of hard pine.

The most interesting feature of the entire



The motor housing is removable.

outfit is the manner in which the engine has been housed in, which may be plainly seen from the illustrations. This housing contains not only the motor, carbureter, magneto, etc., but also the spark coil, battery, switch and muffler, thus keeping the power plant and all its connections in one compartment, and it is found that the heat from the muffler keeps the compartment dry, thus eliminating the objectionable effects of damp sea air. The box is so constructed by tongue and groove arrangement that all four sides can be easily lifted out. A cover is provided for the top with a hasp and padlock, so that when the four pieces are fitted together and the cover fastened the engine and all its vital parts are entirely enclosed.

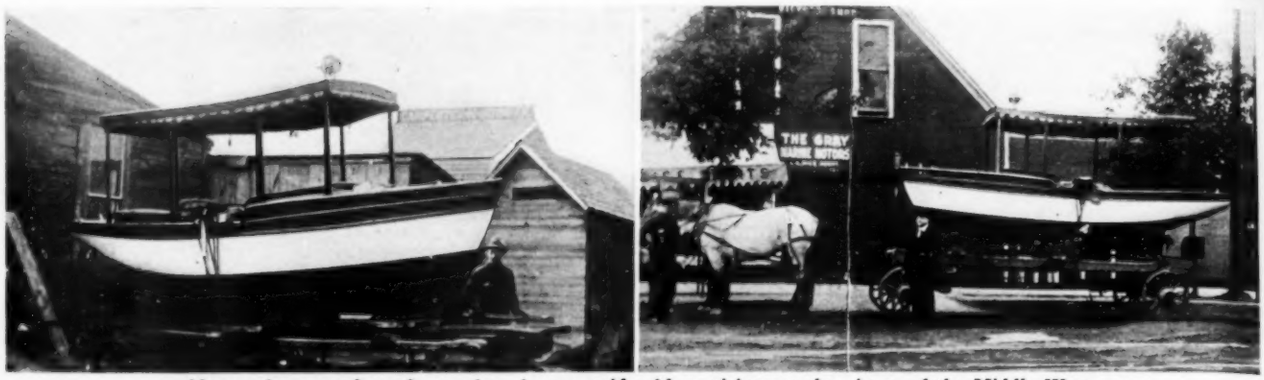
Just forward of the engine on the port side is a vertical wooden tiller with bronze steering rope attached and it is easy for one person to steer with the left hand and at the same time manipulate the oil supply, grease cups, carbureter or any other part of the engine with the right hand without changing his position. The rudder head extends above the after deck and a long tiller is provided for use in case of an accident to the regular steering gear.

The bow of the boat consists of a locker, containing a fifteen-gallon cylindrical gasoline tank and there is sufficient space left in which to store the anchor, cable, etc. In the stern of the boat there is another locker extending the full width in which are kept Albany grease, oil, sailing lights, and other necessary boat equipment.

E. L. M. was launched on April 23d, 1909, and made continuous daily trips between June 1st and September 1st, between the shore and the cottage, a distance of four miles. The total cost of the boat and engine was $400 with $12 additional for spray hood, and $15 for canvas cover.

An itemized list of the expenses for the first season was kept and as no repairs were found necessary this list was merely one of gasoline, oil and grease. 135 gallons of gasoline were used, making the cost of fuel for the season $20.15; 7 gallons of cylinder oil and 5 pounds of Albany grease completed the expense and brought the total up to $27.70.

A single padlock secures the housing.



Alma, a home-made 17-footer, has done considerable cruising on the rivers of the Middle West.

Alma—A Homemade Boat.

MY launch, Alma, while a small boat, comparatively speaking, has capacity to seat comfortably ten persons, besides the steersman, and when thus loaded, has twelve to fourteen inches of freeboard amidships. The raised front deck allows room for the engine and tank beneath it where the former is well protected from the weather. It is controlled from the removable front thwart seat. There are seats along the sides with lockers beneath them, and across the after end of the cockpit there is another thwart-ship seat with lazy back. The boat is 17 feet 11 inches over all by 5 feet 1½ inch beam. The front deck is 5 feet 1 inch long and is raised 5 inches above the sides and rear deck. The cockpit is 9 feet 10 inches in length. The draft at bow is from 16 to 18 inches and about 2 feet 5 inches at skegg.

A 6 h.p. Gray motor with mechanical force feed oiling system with a 16 inch, three-bladed crucible steel screw of 19½ inch pitch and a Smith & Baldridge reverse gear are installed and the equipment includes a Cape Cod folding anchor, 50 feet of electrically welded 3/16 inch steel chain copper and brass plated, gas searchlight with 6 inch mirror lens, five 6 volt tungsten lamps, including headlights and side lights, flag staff, boat hooks, etc. The electrical equipment consists of 12 dry cells, connected in multiple series and a 6-60 Geisler storage battery, which furnishes power for the lights and electric horn.

The lines of the hull can be seen clearly from the illustrations. Its construction is substantial, the frames, ribs, deck, coaming, sheer

(*Continued on page 60.*)

Boats That Cost from $300 to $500.

The boats illustrated and described on this and the following pages are regular stock models that sell for from $300 to $500, and we have endeavored to include all boats on the market that come within this class. Next month the $500-$1,000 boats will be considered and the manufacturers of such boats are requested to send us immediately photographs and descriptions of them to insure their being inserted EDITOR.

Atlantic 20 Ft. Gurnet Dory.

THE ATLANTIC CO., Amebury, Mass. This boat, which is shown in the illustration, is built on the lap strake principle with six strakes to the side. It is 20 ft. 2 in. long, with beam of 5 ft. 4 in., and a draft of 1 ft. 8 in. and is equipped with a 4 H. P. Atlantic motor. The price is $350. The 20 ft. smooth planked dory is built along the same general lines. It is 20 ft. 6 in. over all with beam of 5 ft. 6 in., and draft of 1 ft. 9 in. With a 4 horse Atlantic motor this boat sells for $423 and with one of 5 H. P. for $475.

The Bath Ship Yawl Boat.

BATH MARINE CONSTRUCTION CO., Bath, Me. These boats are built along the lines of the ship's yawl or quarter boat which may be seen hanging from the sterns of many American ships and schooners. The 21 ft. model of 5 ft. 6 in. beam and 5 H. P. maintains a speed of 8½ miles and sells for $450. The 17 ft. model with 5 ft. beam and 3 H. P. sells for $300.

The Knox Yawl Dory Launches.

CAMDEN ANCHOR-ROCKLAND MCH. CO., Camden, Me. These boats are built in sizes ranging from 19 to 30 ft. and in three grades. The 25 ft. boat has a beam of 6 ft. 2 in., and capacity for seating 17 persons. Equipped with a 4½ H. P., 2 cylinder motor, the grades B and C, which are carried in stock, sell for $465 and $395 respectively. The 22 ft. model equipped with a 3½ H. P. motor sells respectively in grades A, B and C for $445, $380 and $335. Hunting or raised deck cabins may be had for all these models at prices ranging from $40 to $75.

The Cayuga 26-Footer.

CAYUGA MOTOR BOAT CO., Cayuga, N. Y. The illustration shows the 26 ft. model of 5 ft. beam. This boat may be had with motors installed ranging H. P. from 8 to 17. With the 8 H. P., 2 cylinder Ferro the boat sells for $450. With the 11 H. P., 2 cylinder motor of the same make the price is $485.

The 24 Ft. Cleveland, Auto Boat.

THE CLEVELAND AUTO BOAT MFG. CO., 1036 River Ave., Cleveland, Ohio. The dimensions of the boat illustrated are: length 24 ft., beam 5 ft. 4 in., depth at bow 3 ft. 9 in., depth at stern 22 in., free board at bow 37 in., free board at stern 22 in. Draft 8 in., length of cockpit 16 ft. 3 in., seating capacity 12 persons. An 8 H. P. Ferro motor is installed in this boat and the price complete with reverse gear is $450.

The Cooley 22 Ft. Cape Ann Dory.

COOLEY MFG. CO., Waterbury, Vt. Length over all 22 ft. 9 in., length on bottom 15 ft., extreme beam 6 ft., depth amidships 2 ft. 4 in.; the timbers are of steam bent oak spaced 12 in. on centers and the planking is of ⅝ in. pine, six strakes to the side. Equipped with a 5 H. P., single cylinder Cooley motor, a speed of from 8 to 9 miles is maintained and completely equipped for salt water the price is $450.

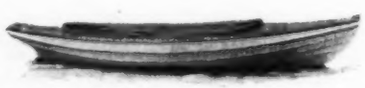
The De Foe 30-Footer.

DE FOE BOAT AND MOTOR WORKS. Bay City, Mich. The boat shown in the illustration may be had in any stage of completion, the finished hull without motor selling for $325. The length is 30 ft., beam 5 ft. 4 in., draft 25 in. and with a 12 horse motor 12 miles per hour may be obtained. The 25 footer of similar model may be had complete without motor for $250.

The 20-foot Emmons Auxiliary.

The Cleveland 24-foot Auto Boat.

The Minnesota Runabout.



Atlantic 20-foot gurnet dory.

The Toppan fishing dory.

Detroit 20-Foot Automobile Boat.

DETROIT BOAT CO., Detroit, Mich. The length of the boat shown in the illustration is 20 ft., beam 4 ft. 10 in., draft 18 in. It is regularly equipped with a 5-6 H. P. motor and sells for $455. The boat will carry, however, as high as 15 H. P. and a motor of greater power up to this figure will be installed at an additional cost according to H. P.

Several Emmons Models.

E. GERRY EMMONS, Swampscott, Mass. The boat shown in the illustration is a 21 ft. by 6 ft. auxiliary with 5 horse, 2 cylinder Emmons motor and reversing propeller; the price is $500. With 2½ horse motor, $400. The same boat in grade B with same motors as above sells for $450 and $350. The 20 ft. lobster and fishing dory sells for $425. The 22 and 25 ft. double end, lap strake dories with reversible propeller and of 5 and 6 H. P. sell for $400 and $500 respectively. The 17 foot launch is made in four grades and equipped with 2½ H. P. motor, sells for $400 and $350 in grades A and B. Grades B and C of the 20 ft. launch sell for $500 and $450 respectively. Grade C of the 22 ft. launch equipped with 5 H. P. Palmer motor sells for $500.

The Fay & Bowen 21-Footer.

FAY & BOWEN ENGINE CO., Geneva, N. Y. The 21 footer shown in the illustration is equipped with a 5 horse motor of the same make. The dimensions are: length over all 21 ft. 9 in., water line length 21 ft. 5 in., beam 5 ft. and length of cock pit 12 ft. Fully equipped including under water exhaust, this boat sells for $476.

The Gile 22½ ft. Auto Launch.

GILE BOAT & ENGINE CO., Ludington, Mich. This boat is 22½ ft. over all by 5 ft. beam with cockpit 12 ft. by 4 ft. 6 in. A self starting reversible 2 cylinder Gile motor of 8 H. P. is installed forward of the bulkhead under a removable hatch, and gives the boat a speed of approximately 12 miles an hour. With the exception of a seat across the after end and the operator's seat forward the cock pit is left clear for the use of chairs. The price is $500.

Inland Lakes 18-Footer.

INLAND LAKES BOAT CO., Lake Geneva, Wis. This is a semi-speed family boat of the following dimensions: length over all 18 ft., beam 4 ft. 8 in., draft 9 in. The construction is of oak planked with ⅝ in. cypress and the engine is a 5½ H. P. Ferro, with reverse gear. The boat seats from 10 to 12 persons and maintains a speed of 9 miles per hour. The price is $475.

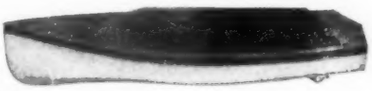
The Michigan Steel Boats.

MICHIGAN STEEL BOAT CO., Detroit, Mich. Several models manufactured by this company come within the $300-$500 mark. The 16 ft. "Express" equipped with either 4, 5, 6, or 7-8 H. P. motors sells for $310, $340 and $370. The 18 footer equipped with either 2, 3, 4 or 5-6 H. P. motors sells for $400, $430, $460 and $490. The 18 ft. fan-tail model with 2, 3, 4 or 5-6 H. P. motors sells for $350, $380, $410 and $440. The 20 ft. model equipped with 3 H. P. motor sells for $455.

22-foot Packard special.

Moore 20-foot runabout.

Fay & Bowen 21-footer.



St. Louis 18-footer.

De Foe 30-footer.

Waterman 20-foot speed canoe.

Motorgo 20-footer.

The Minnesota 18-20, 22 and 25 Footers.

THE MINNESOTA BOAT & POWER CO., Stillwater, Minn. These boats are all built along speed lines with the motor installed under the deck forward. The 18 footer of 4 ft. beam equipped with 2 cylinder, 6 horse motor and clutch sells for $340 and with a similar 8 horse motor for $390. The 20 footer of 4 ft. 2 in. beam equipped with 6 H. P. motor sells for $320 and with 6 horse and 8 horse double cylinder motors for $360 and $425 respectively. The 22 footer has a beam of 4 ft. 6 in. and sells for $310, $350, $400 and $450 when equipped with 3 H. P. single cylinder, 6 H. P. single cylinder, 6 H. P. double cylinder and H. P. double cylinder. The 25 footer sells for $420, $450 and $500 with 6 H. P. single, 6 H. P. double and 3 H. P. double cylinder motors.

Moore 20 Ft. Runabout.

MOORE BOAT WORKS, Wayzata, Minn. The launch shown in the illustration is 20 ft. over all with a beam of 5 ft. 2 in., draft 18 in. and seating capacity for 12. It is constructed of oak and planked with red cypress and finished with oak coaming and decks. A 4 H. P., single cylinder reversible motor is installed turning a 15 in. three bladed propeller at 600 r.p.m. The price is $365.

Mullins 20 Ft. Auto Boat.

THE W. H. MULLINS CO., Salem, Ohio. The boat shown in the illustration is built along speed lines with a 10 horse, 2 cylinder motor installed forward, under a hatch. Beam is 5 ft. and the draft at skeg is 20 in. The cockpit is 8 ft. long and accommodates eight persons. With this power the boat maintains a speed of from 9 to 10 miles per hour. The price is $450.

Niagara Launch Hulls.

NIAGARA MOTOR BOAT CO., N. Tonawanda, N. Y. This company turns out hulls in all stages of completion from knock down frames to the finished product. The 20 and 21 ft. completed hulls with either flat or V transom sterns sell for $250 and $300 respectively. The 22 ft. 6 in. dory hull complete sells for $300.

The Outing 18 and 21 Footers.

OUTING BOAT CO., Ashland, Wis. These boats are both built with two seating compartments with the motor installed between the two and beneath the cross seats amidships thus requiring but little space. The 18 footer with 8 H. P. motor sells for $365 and the 21 footer with either 5½ or 11 H. P. motor sells for $350 and $460.

The 22 Ft. Packard Special.

THE PACKARD MOTOR YACHT CO., Cincinnati, Ohio. The dimensions of the boat shown in the illustration are: length over all 22 ft., beam 4 ft. 6 in., depth at bow 3 ft. 4 in., depth at stern 2 ft. 3 in., free board at bow 2 ft. 4 in., free board at stern 2 ft., and draft 18 in. The construction is of white oak with Oregon fir planking. A 5½ H. P. Ferro motor is installed amidships giving the boat a speed of 10 miles per hour. The price is $390 complete.

Palmer Brothers 25 Ft. Launch.

PALMER BROTHERS, Cos Cob, Conn. The 25 footer manufactured by this company has a beam of 6 ft. and is supplied with either round, square or compromise stern. Equipped with a 5 H. P. Palmer engine the price is $450 and with either a 5½ horse make-and-break or a 5½ horse jump spark motor the price is $460 complete.

The 20 Ft. Peterboro' Special.

THE PETERBOROUGH CANOE CO., Peterborough, Ont. This boat is built upon speed lines and equipped with an 8 H. P. Ferro motor and reverse gear maintains a speed of 11 miles per hour. The engine is installed forward and is controlled from the steering seat. The dimensions are: length over all 20 ft., beam 4 ft., and draft 18 in. The price completely equipped is $500.

The 22 Ft. Pope Special.

POPE BOAT CO., Fond du lac, Wis. The Pope Special is made in three styles, viz: with open cockpit, with engine under seat, with engine under forward deck. The 22 footer with open cockpit and 5½ H. P. Ferro motor sells for $404. With 8 H. P. motor for $474. The same boat with 5½ H. P. engine under cross seats amidships sells for $497. With the same motor under forward deck the price is also $497. The 18 ft. model equipped with 3 horse Ferro Special either forward or under cross seats ambidships sells for $340, and with 4 horse motor for $370.

Racine 21 Ft. Family Launch.

RACINE BOAT MFG. CO., Muskegon, Mich. The illustration shows the 21 ft. family launch which equipped with a 4 H. P. motor sells for $450. The beam is 5 ft., speed 7½ miles per hour and the seating capacity 12 persons. An 18 footer similar to the above and equipped with a 3 H. P. motor sells for $325. The 18 and 21 ft. turbine shallow draft boats equipped with 4 and 5 H. P. motors sell for $400 and $500 respectively and the 25 ft. dory with 5 H. P. motor sells for $450.

Red Wing 20 Ft. Family Launch.

RED WING BOAT MFG. CO., Red Wing, Minn. The 20 ft. family launch shown in the illustration has a beam of 5 ft. and draft of 19 in., the seating capacity is 14 persons and the speed with a 5 H. P. Red Wing motor is 10 miles per hour. In grade A the price is $475 and in grade B $445. An 18 footer of similar design equipped with a 4 H. P. motor sells for $360 in grade A, and $340 in grade B. It has a seating capacity of 10 persons and a speed of 9 miles.

The 20 Ft. Robertson.

ROBERTSON BROTHERS, Hamilton, Ont. The boat shown in the illustration has the following dimensions: length over all 20 ft., beam 5 ft., depth at bow 36 in., depth at stern 20 in., freeboard at bow 30 in., freeboard at stern 27 in., draft 20 in., length of cockpit 12 ft., seating capacity 10 persons. This boat may be had in any stage of completion and the finished boat with 5½ H. P. Ferro, with reverse gear, sells for $375. With the same equipment except the reverse gear the price is $337.

A St. Louis 18-Footer.

ST. LOUIS BOAT & ENGINE CO., St. Louis, Mo. The Royal launch shown in the illustration is equipped with a 4 H. P. motor and reverse gear and sells for $360. It is 18 ft. over all by 4 ft. 4 in. beam, depth at bow and stern 24 and 20 in. respectively, length of cockpit 11 ft. 8 in., speed 8 miles per hour, seating capacity 10 persons. The construction is of oak with cypress planking.

The Motorgo 22 Ft. Auto Boat.

SEARS, ROEBUCK & CO., Chicago, Ill. The 22 footer shown in the illustration has a beam of 5 ft. and a cockpit 12 ft. long by 4 ft. 6 in. wide. Equipped with an 8 H. P., 2 cylinder, 2 cycle motor the speed is 10 miles per hour. The motor is installed forward under the deck and the control is of the automobile type. The price of the motor boat complete is $450. For seat cushions $35 extra; for auto top with spray hood, side and back curtains, $56.

Several Toppan Models.

TOPPAN BOAT MFG. CO., Boston, Mass. The dory shown in the illustration was designed for fishing and lobstering and is made in 18, 20, 22, 26 and 30 ft. lengths, all lap strake. The 26 footer has a beam of 6½ ft. and, equipped with a 5 H. P. motor, the price is $500. The 20 ft. regular dory equipped with 3 horse and 5 horse Toppan motors sells for $310 and $350. The 22 footer with 5 H. P. Toppan motor sells for $425. The 18 ft. safety launch with 3 or 5 H. P. motors sells for $345 and $395. The 20 ft. safety launch with the same power plants sells for $390 and $440. The 22 ft. safety launch with 5 horse motor sells for $500. A 22 ft. trunk cabin cruiser also comes within this class. It is equipped with a 5 H. P. motor and sells for $490.

Mullins 20-foot auto boat.

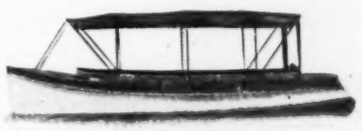
22-foot Pope special.

20-foot Robertson.

Detroit 20-footer.

Racine 21?foot family launch.

Racine 21-foot family launch.



Red Wing 20-footer.

24 Ft. Metallic Life Boat.

WELLIN, DAVIT AND LANE & DE GROOT CO., New York City. This company is turning out a metallic life boat built on seaworthy lines somewhat after the whale boat model. It is 24 ft. 6 in. over all by 6 ft. beam and 3 ft. depth. The hull is of No. 16 B. W. G. galvanized steel over a frame, stem and stern posts of white oak. The price of this boat alone with any standard motor installed is $300.

White Canvas Covered Speed Boat.

E. M. WHITE & CO., Old Town, Me. This company has adapted the canoe construction to the requirements of the speed boat and is turning out a 25 ft. model of 51 in. beam and 28 in. depth amidships, which weighs 700 lbs. Equipped with a 6 H. P., 3 cylinder motor the boat sells complete for $500 or the hull alone is $300.

The Waterman 20 Ft. Speed Canoe.

WATERMAN MARINE MOTOR CO., Detroit, Mich. The illustration shows the 20 ft. speed boat in which the canoe construction has been used. The boat has a beam of 3 ft. 3 in. and is good for 16 miles an hour when equipped with the K-4, 4 cylinder canoe engine. With the B-2, a new 2 cylinder model with copper jackets and aluminum crank case it attains a speed of 17 miles per hour. The price with either is $400.

The Lexington 20-Footer.

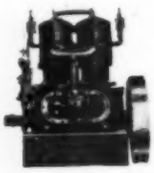
LEXINGTON MOTOR BOAT CO., Lexington, Ky. The dimensions of this company's 20 footer are: beam 5 ft., depth at bow 3 ft., depth at stern 2 ft. 8 in., depth amidship 2 ft. 6 in., draft 18 in., length of cockpit 16 ft., seating capacity 10 persons. With 4 H. P. Ferro this boat sells for $450.

The Brein Models.

THE BREIN MARINE WORKS, Rock Island, Ill. The "Nautilus" model, 20 ft. in length, equipped with a 2 cylinder 7-8 H. P. motor, reverse gear, cushions, curtains, lights, ice box, folding anchor, flags and fenders sells for $333. The "Firefly" model is an 18 footer and with the same equipment included, the price is $307.

Motors for $500 Motor Boats.

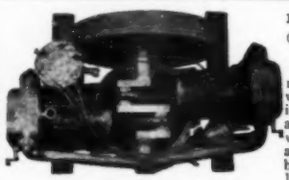
This is the fourth instalment of motors in the "Motor Boat Cost Series," and in this department we have included all those motors which might be used in boats costing complete not over $500. An an arbitrary price limit for the motors themselves we have taken $300; and, as last month the limit was $200, the motors here described range in price from $200 to $300, and we have endeavored to include all motors on the market selling within these figures. Manufacturers are requested to co-operate with us by supplying us with photographs, descriptions and net prices of their various models for insertion in this series. In sending us this matter the manufacturers will incur no obligation of any sort, but will be conferring upon us a favor. We want this motor series to be representative of the entire trade and, therefore, of the greatest possible value to the motor boatman and prospective motor boatman.—EDITOR.



The 8 H. P Anderson.

(*Engine complete with electrical and boat equipments including reversible propeller* $230.)

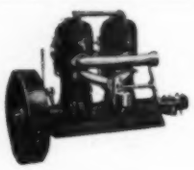
ANDERSON ENGINE CO., Shelbyville, Ill. Two cylinders, four cycle, jump spark ignition, bore 4½ in., stroke 5 in., normal speed 500 r.p.m., height from center of shaft 23 in., diameter of fly wheel 16 in., weight 400 lbs. The three cylinder 7½ H. P. model also comes within this class selling for $260.



10 H. P. and 12 H. P. Westerfields.

(*12 H. P. complete* $231.25, *10 H. P. complete* $218.75.)

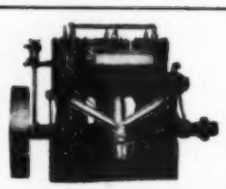
ANDERSON MOTOR CO., Jackson and 16th Sts., Anderson, Ind. The cut herewith illustrates both of the above two cylinder models. The 12 horse model has a bore of 5⅛ in. and a stroke of 5 in., weighs 410 lbs. and develops its rated H. P. at 750 r.p.m. The 10 horse model has a bore of 5 in., stroke of 5 in., weighs 380 lbs. Both of these models are four cycle.



The 8 H. P. Atlantic.

(*Engine complete with electrical and boat equipments* $220.)

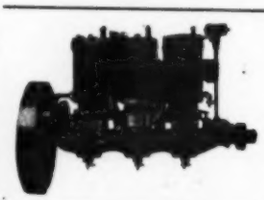
THE ATLANTIC CO., Amesbury, Mass. Two cylinders, two cycle, three port, jump spark ignition, bore 4⅛ in., stroke 4 in., normal speed 600 r.p.m., diameter of fly wheel, 15 n., weight 195 lbs. Equipment includes Schebler carburetor, tubular expanding muffler, or expansion tank for submerged exhaust and special water proof jump spark outfit.



12-16 H. P. Bridgeport.

(*Motor equipped with carburetor* $300.)

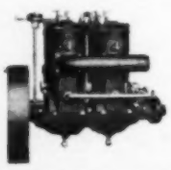
THE BRIDGEPORT MOTOR CO., INC., Bridgeport, Conn. Semi-speed model, 3 cylinders, two cycle, jump spark ignition, bore 4½ in., stroke 5 in., normal speed 500 to 700 r.p.m. Two other models also come within this class, viz: an 8-10 H. P. 2 cylinder, semi-speed model selling for $225 and a 7 H. P., 2 cylinder medium speed with make and break ignition selling for $225.



10 H. P. Brown Three Cylinder.

(*Motor with equipment* $250, *for reverse gear* $24, *for aluminum base* $20.)

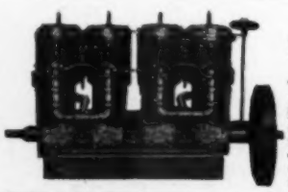
B. F. BROWN GAS ENGINE CO., Syracuse, N. Y. Three cylinders, two cycle, jump spark ignition, bore 3½ in., stroke 3½ in., removable cylinder heads, rotary gear-driven pump, timer mounted on vertical gear-driven shaft. Coming within this class also are an 18 H. P., 2 cylinder model selling for $300 and a 10-12 H. P. for $250.



Brown-Talbot 14 H. P.

(*Engine complete* $250.)

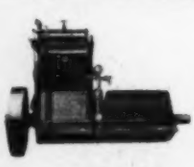
THE BROWN-TALBOT MACHINERY CO., Salem, Mass. Two cycle, jump spark ignition, bore 5½ in., stroke 5 in. This motor is made in two weights. The Standard type, 450 lbs., develops 14 H. P. at 500 r. p. m., and the lighter model, 375 lbs., develops 20 H. P. when turning at 800 r.p.m. The former is well adapted for cruisers and open launches and the latter for runabouts and semi-speed boats.



6 H. P. Buffalo Arrow.

(*Motor complete with electrical equipment* $240.)

BUFFALO AUTO-TRUCK AND MOTOR CO., 2-4 Illinois St., Buffalo, N. Y. Four cylinders, two cycle, jump spark ignition, bore 3 in., stroke 3 in., diameter of fly wheel 15 in., minimum speed 100 r.p.m., normal speed 550 r.p.m., removable cylinder heads, weight 295 lbs. Price includes spark coil, switch, dry cells, muffler, starting crank, carburetor and water pump.



7½ H. P. Buffalo.

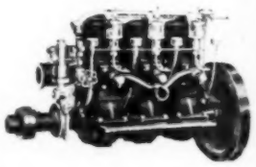
(*Engine complete with electrical equipment* $280.)

BUFFALO GASOLINE MOTOR CO., Buffalo, N. Y. Two cylinders, four cycle, jump spark ingnition, bore 4½ in., stroke 5 in., normal speed 600 r.p.m., weight 390 lbs., diameter of fly wheel 16 in., height from center of crank shaft 24 in. The 5 H. P., 2 cylinder model sells for $220 with electrical equipment. The dimensions are: bore 3½ in., stroke 5 in.

Caille Perfection 12 H. P.

(*Engine complete with electrical and boat equipments* $225. $4 *extra for salt water fittings.*)

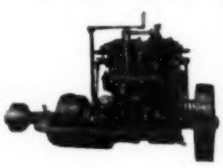
CAILLE PERFECTION MOTOR CO., Detroit, Mich. Three cylinders, two cycle, jump spark ignition, bore 3⅞ in., stroke 3½ in., speed from 100 to 1,000 r.p.m., weight 300 lbs. The 14 H. P. two cylinder, model also comes within this class selling for $224 completely equipped for salt water.



The Knox 5 H. P.

(*Motor complete with electrical and boat equipments including gasoline tank and fittings* $221.)

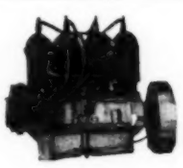
CAMDEN ANCHOR-ROCKLAND MACHINE CO., Camden, Me. Two cylinders, two cycle, make-and-break ignition, bore 4 in., stroke 4 in., normal speed 500 r.p.m., at which speed the H. P. is 5½. Seven H. P. is developed at 800 r.p.m. The igniters are removable, the firing points being of iridium platinum.



The 12-16 H. P. Cameron.

(*Engine complete* $250.)

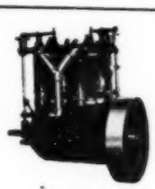
CAMERON CAR CO., Beverly, Mass. Four cylinders, four cycle, jump spark ignition, bore 3⅜ in., stroke 3¼ in., weight 265 lbs. Can be run at any speed from 200 to 1,000 r.p.m. developing 18 H. P. at the latter speed. Equipment includes magneto, carburetor, plugs, wiring, water pump, etc. The crank case and gear case are of aluminum.



The 16 H. P. Clay.

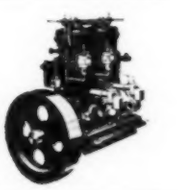
(*Engine without equipment* $275.)

E. H. CLAY & CO., 6950 Kinsman Road, Cleveland, Ohio. Two cylinders, four cycle, jump spark ignition, bore 6½ in., stroke 7 in., maximum speed 650 r.p.m., minimum speed 150 r.p.m., normal 500 r.p.m. Diameter of fly wheel 24 in., height from center of shaft 28 in. The 12 H. P. and the 20 H. P. models also come within this class selling for $250 and $300 respectively, without equipment.



The 10 H. P. Cooley

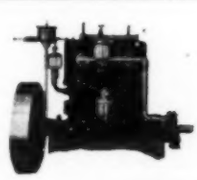
COOLEY MANUFACTURING COMPANY, Waterbury, Vermont. Two cylinders, two cycle, make-and-break ignition, cylinders cast separately and may be had with either detachable or integrally cast cylinder heads. Designed for hard, continuous service. Equipment includes bronze shafting and propeller, bronze stern bearing and stuffing box, six dry cells, coil, switch, oil, grease, etc.



Cushman 8 H. P.

(*Engine complete with electrical equipment* $206.50, *with complete boat equipment including Gies reverse gear* $245.)

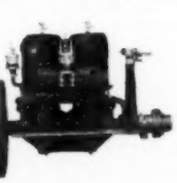
CUSHMAN MOTOR WORKS, Lincoln, Neb. Two cylinders, two cycle, jump spark ignition, bore 4 in., stroke 3½ in., normal speed 950 r.p.m., weight 185 lbs., timer on vertical gear-driven shaft, three bladed propeller 14 in., in diameter by 19½ in. pitch; equipment includes Schebler carburetor.



The 12-16 H. P. De Mooy.

(*Engine with electrical equipment* $240.)

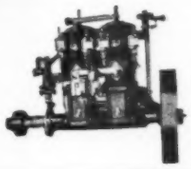
DE MOOY BROTHERS, Cleveland, Ohio. Two cylinders, two cycle, jump spark ignition, bore 4¾ in., stroke 5 in., normal speed from 600 to 800 r.p.m., weight 360 lbs. The 9-12 H. P., three cylinder model also comes within this class selling for $235; the bore and stroke are each 3½ in.



The Liberty 12-14 H. P.

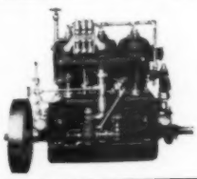
(*Motor complete with boat and electrical equipment* $220. $12 *extra for salt water fittings.*)

DETROIT AUTO SPECIALTY CO., INC., Detroit, Mich. Two cylinders, two cycle, jump spark ignition, bore 5 in., stroke 4½ in., water jacketed exhaust manifold, timer mounted on vertical gear-driven shaft.



The 12 H. P. Detroit.

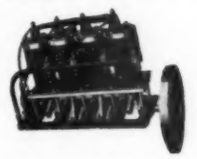
DETROIT ENGINE WORKS, Detroit, Mich. Two cylinders, two cycle, jump spark ignition, bore 4⅞ in., stroke 4⅜ in., timer mounted on vertical gear-driven shaft, height from bottom of fly wheel to top of cylinders 21 in., diameter of fly wheel 17 in., speed range from 50 to 1,200 r.p.m., turns a 17 in. three blade propeller, diameter of crank shaft 1 11/16, weight 370 lbs.



The 8 H. P. Doman.

(Motor complete with electrical and boat equipment including reverse gear $288.)

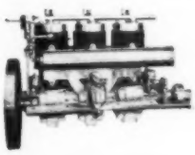
H. C. DOMAN CO., Oshkosh, Wis. Three cylinders, four cycle, jump spark ignition, bore 4 in., stroke 5 in., diameter of fly wheel 14 in., height from center of crank shaft 21½ in., normal speed 525 r.p.m., weight 552 lbs. The 5 H. P., 2 cylinder model is similar to the one described and sells for $237 with the same equipment.



The Dunn 24 H. P.

(Engine complete $300.)

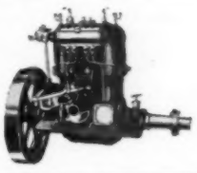
WALTER E. DUNN, Ogdensburg, N. Y. In general appearance the six cylinder motor is similar to the four cylinder 16 H. P. model shown herewith, the bore and stroke are the same for each, being 4 3/16 in. by 5 in. Four cycle, jump spark ignition, normal speed 600 r.p.m., side plates supplied on crank case unless otherwise specified, cylinders cast separately and cylinder heads removable.



Elbridge 9-15 H. P.

(Engine with electrical equipment $300.)

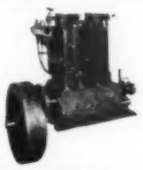
ELBRIDGE ENGINE CO., Rochester, N. Y. Three cylinders, two cycle jump spark ignition, bore 3½ in., stroke 3½ in., height above bed 15 in., diameter of fly wheel 14 in., crank shaft 1¾ in. diameter, weight with iron fittings 172 lbs., with aluminum 142 lbs. The 12-20 H. P., 2 cylinder model of 4⅜ in. bore and 4¼ in. stroke also comes within this class selling for $300 with iron fittings.



The Emerson 16-20 H. P.

(Engine complete $250.)

EMERSON ENGINE CO., Alexandria, Va. Two cylinders, two cycle, jump spark ignition, bore 5 in., stroke 5 in., diameter of fly wheel 18 in., height from center of shaft 19 in., weight 307 lbs. Rotary gear-driven water pump, multiple sight feed oiler, cylinders cast en bloc, timer mounted on vertical gear-driven shaft. Reverse gear $35 extra, aluminum base $12 extra.



7½ H. P. Evansville.

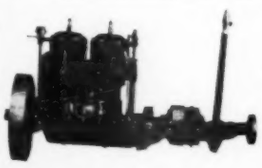
(Engine complete with electrical equipment $200; with boat equipment including reverse gear $240.)

EVANSVILLE GAS ENGINE WORKS, Evansville, Ind. Two cylinders, four cycle, jump spark ignition, bore 4½ in., stroke 5 in., normal speed 500 r.p.m., diameter of fly wheel 16 in., height over all from center of shaft, 20½ in. The 10 H. P. two cylinder model of 5 in. bore and 6 in. stroke sells for $260 and $312.

Fay & Bowen 7½ H. P.

(Engine complete with electrical and boat equipment including reversible propeller $260.)

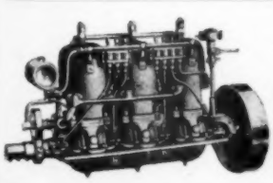
FAY & BOWEN ENGINE CO., Geneva, N. Y. Two cycle, jump spark ignition, bore 5½ in., stroke 5½ in., normal speed 500 r.p.m., diameter of fly wheel 22 in., height from center of shaft 24½ in. The convertible kerosene type of the same H. P. sells for $286.



Three Ferro Models.

(11 H. P., 2 cylinder with electrical and boat equipments for salt water $241. 12 H. P., $281; 15 H. P., $300.)

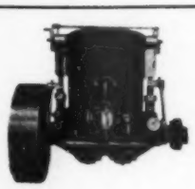
FERRO MACHINE & FOUNDRY CO., Cleveland, Ohio. Shown herewith is the 11 H. P., 2 cylinder model which has a bore of 4¼ in., and stroke of 4¼ in., removable cylinder heads, water jacketed exhaust manifold, etc. The 12 horse 3 cylinder model has a bore of 3¾ in., and stroke 3½ in. The 15 H. P., 2 cylinder model has a bore and stroke of 5 in.



The 13-15 H. P. Capitol.

(Engine complete with Perfex ignition and boat equipment $275.)

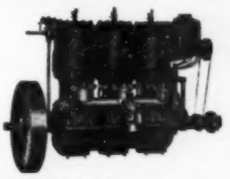
FIFIELD BROTHERS CO., Augusta, Me. Three cylinders, two cycle, jump spark ignition, bore 3½ in., stroke 3¼ in., weight 190 lbs., normal speed from 700 to 1,200 r.p.m. Coming within this class also are the 10-12 H. P., 2 cylinder medium speed model selling at $270 and the 18-20 H. P., 2 cylinder high speed model selling for $300.



The 10 H. P. Fulton.

(With make-and-break ignition $269.60 With jump spark $260. With complete equipments $297.80 and $300.20.)

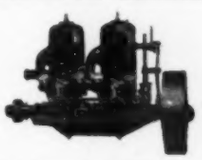
FULTON ENGINE CO., Erie, Pa. Two cylinders, two cycle, jump spark or make-and-break ignition, bore 4½ in., stroke 5 in., normal speed 600 r.p.m., cylinders cast en bloc, equipment includes automatic bilge pump, muffler, Schebler carburetor, Splitdorf coil, solid bronze propeller, 5 ft. of bronze shafting.



The 10 H. P. Goshen.

(Engine with electrical equipment $235. With boat equipment $250.)

GOSHEN MOTOR WORKS, Goshen, Ind. Two cycle, jump spark ignition, bore 6 in., stroke 7 in. The 6-8 H. P., 2 cylinder and the 12-16 H. P., 2 cylinder models also come within this class. The former sells for $218 and $237.75. The latter sells for $262.50 and $293.



The 15-20 H. P. Grasser.

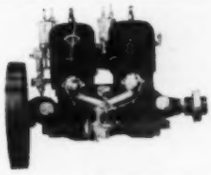
(Engine complete with electrical equipment $245; with boat equipment $255.)

GRASSER MOTOR CO., 102 Ottawa St., Toledo, O. Two cycle, two cylinders, jump spark ignition, bore 5 in., stroke 5 in., normal speed 600 r.p.m., approximate weight 470 lbs. The 10-14 H. P. also comes within this class. It is a double cylinder of 4¾ in. bore and stroke and sells for $220 and $230 with above equipments.

The 10 H. P. Frisbie.

(Motor complete with electrical equipment and water connections $300.)

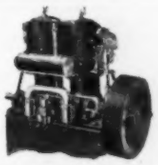
FRISBIE, HEFT MOTOR CO., Middletown, Conn. Double cylinder, four cycle, jump spark or make-and-break ignition, bore 4¾ in., stroke 5 in., normal speed 600 r.p.m., diameter of crank shaft 1¾ in., main bearings 4½ by 1¾ in., diameter of fly wheel 17 in.; equipment includes Schebler carburetor.



The 20 H. P. Gray.

(Motor complete with electrical and boat equipment $284. For salt water $298.)

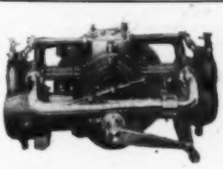
GRAY MOTOR CO., Detroit, Mich. Two cylinders, two cycle, jump spark ignition, bore 5¾ in., stroke 5 in., speed 600 r.p.m., weight 550 lbs. The 12 H. P. model R and the 12 H. P. model S also come within this class selling for $210 and $236 respectively, completely equipped. These models both have a bore and stroke of 4¾ and 4 in.



The 10 H. P. Hartford.

(Engine complete $272.85; with complete electrical and boat equipments, $300.)

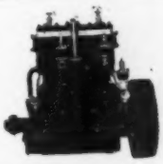
THE GRAY & PRIOR MACHINE CO., Hartford, Conn. Two cylinders, two cycle, make-and-break ignition, bore 5 in., stroke 5¼ in., height from center of shaft 22 in., diameter of fly wheel 16 in., normal speed 490 r.p.m., net weight 425 lbs., turns a 22 in. three bladed propeller of 30 in. pitch. This motor is reversible and delivers at the brake 13 H. P.



The Hall Double-Opposed.

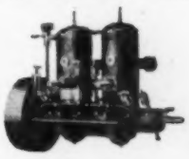
(The 12 H. P. model complete $204.05. With electrical and boat equipments $260.90.)

HALL GAS ENGINE MFG. CO., Byesville, Ohio. Two cylinders, horizontal opposed, four cycle, jump spark ignition, bore 5¼ in., stroke 4½ in., weight 360 lbs. The 8 horse, 2 cylinder model of 4¾ in. bore and 4 in. stroke also comes within this class selling with complete equipment for $236.40. The equipment includes reverse gear.



The 8 H. P. Hall.

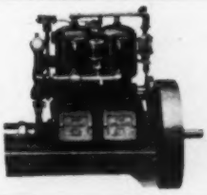
THE HALL GAS ENGINE CO., Philadelphia, Pa. Two cylinders, four cycle, jump spark ignition, speed 600 r.p.m., height from center of shaft 38½ in., diameter of fly wheel 18 in., cylinders cast en bloc with head removable. Accessibility is a feature of these motors as by removing the side plates or head any part is easily removable without disturbing other parts.



The 10 H. P. Victor.

(Motor $217.50; with electrical and boat fittings, $277.50.)

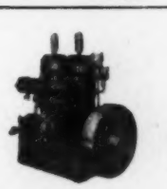
ROBERT S. HILL, 24 East Woodbridge St., Detroit, Mich. Two cylinders, two cycle, jump spark ignition, bore 4½ in., stroke 4 in., height from center of shaft 16 in., diameter of fly wheel 14 in., bearings babbitted and water cooled, drives an 18 in. propeller 750 r.p.m., weight 280 lbs.; equipped with detachable end half boxes to take up wear.



The Holliday 5 H. P.

(Engine complete with electrical equipment $215. With boat equipment $245.)

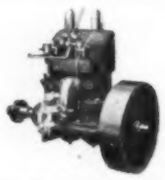
HOLLIDAY ENGINEERING CO., 749 Bunker St., Chicago, Ill. Two cylinders, two cycle, jump spark ignition, 3¼ in. bore by 5 in. stroke, normal speed 600 r.p.m. The 7½ H. P. single cylinder model of 6 in. bore and 7 in. stroke sells for $225 and $264 with above equipments and the 6 horse Fisherman Special of 6¾ in. bore by 7 in. stroke sells for $250.



The 10-12 H. P. Kershaw-Williams.

(Motor with complete boat and electrical equipments $275.)

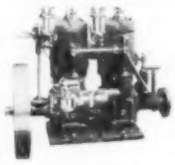
KERSHAW-WILLIAMS CO., Boston, Mass. Two cylinders, two cycle, jump spark ignition, 4½ in. bore by 5 in. stroke, normal speed from 500 to 600 r.p.m., equipment includes Orsell water-proof ignition, Schebler carburetor and Heinz timer. The 6-8 H. P., 2 cylinder model also comes within this class selling for $215 equipped as above. The bore and stroke of this model are each 4 in.



The 15 H. P. Lackawanna.

(*Motor complete* $240, *with ignition outfit* $256.15, *with boat outfit* $284.90.)

LACKAWANNA MFG. CO., Newburg, N. Y. Two cylinders, two cycle, jump spark ignition, bore and stroke 5 in., cylinders are cast en bloc; reversible throttle and spark controls mounted on cylinders. The 12 H. P., 2 cylinder model is similar to the one just described and sells for $210, $226.15, and $249.65 with the same equipments.



The 12 H. P. Lejeal.

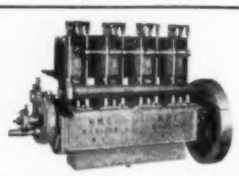
(*Motor complete* $270.)

LEJEAL MOTOR WORKS, Erie, Pa. Two cylinders, two cycle, two port jump spark ignition, bore 5 in., stroke 4 in., diameter of fly wheel 17 in., height from center of shaft 16½ in., cylinder heads removable, timer mounted on vertical gear-driven shaft. Dimensions of base 11 by 17¼ in.

The 10 H. P. Loveland.

(*Engine complete with electrical and boat equipment* $210.)

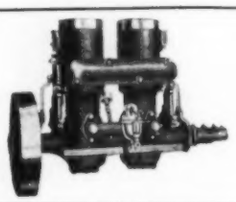
LOVELAND MFG. CO., Bridgeton, N. J. The cylinders of the three 2 cylinder, two cycle models are the same size as the 3, 5 and 8 single cylinder models. The 10 horse has a bore of 4⅝ in., and develops its rated power at 575 r.p.m. The 6-7 two cylinder, four cycle model also has a bore of 4⅝ and a stroke of 5 in. and sells for $255.



The Manlius 20 H. P.

(*Engine complete* $280.)

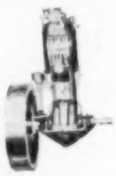
MANLIUS MOTOR CO., Manlius, N. Y. Four cylinders, four cycle, jump spark ignition, bore 4 in., stroke 3½ in., water circulation by gear-driven, bronze gear pump, lubrication is by cam actuated pump from sub base oil reservoir through sight feed and filter and down through three center bearings which overflow to base proper and then back into sub base.



Mianus 10 H. P.

(*Motor complete* $235. *With complete electrical and boat equipments including gasoline tank* $281.75.)

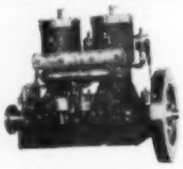
MIANUS MOTOR WORKS, Mianus, Conn. Two cylinders, two cycle, make-and-break ignition, water cooled exhaust manifold, bore 4⅝ in., stroke 5 in., normal speed 500 r.p.m., weight 500 lbs., magneto, mechanical oiler, and reverse clutch may be had for $50, $4, and $50 respectively.



7½ H. P. Nichols Kerosene.

(*Engine complete* $267.75.)

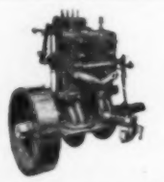
NICHOLS POWER CO., Inc., West Waterside, Stamford, Conn. Two cycle, jump spark ignition, bore 5½ in., stroke 6 in., normal speed 550 r.p.m., height above shaft 29 in., diameter of crank shaft 2¼ in., approximate weight 385 lbs. This motor uses kerosene for fuel which is automatically supplied by a simple device, and ignited in the usual manner.



The 10 H. P. Ontario.

(*Motor complete with electrical equipment* $235. *With solid bronze propeller and outfit* $255; *with reversible bronze wheel,* $275.)

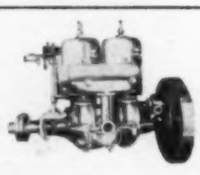
ONTARIO IRON WORKS, Pulaski, N. Y. Two cylinders, two cycle, jump spark ignition, bore 5 in., stroke 5 in., normal speed 600 r.p.m. Height from center of shaft 19 in., weight complete 500 lbs., cylinder heads removable. Circulation accomplished by rotary gear-driven pump.



14 H. P. Palmer.

(*Engine complete* $240; *with electrical and boat equipments* $297.)

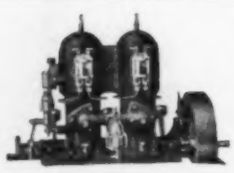
PALMER BROTHERS, Cos Cob, Conn. Two cylinders, two cycle, jump spark ignition, bore 5 in., stroke 6 in., speed 625 r.p.m., weight 500 lbs., water cooled exhaust manifold. The 11 H. P., 2 cylinder model with 5 in. bore and 6 in. stroke and speed of 475 r.p.m., also comes within this class selling for $260 and $305 with the above equipments.



The Pierce-Budd 12-15 H. P.

(*Motor complete with electrical and propeller equipments* $295.)

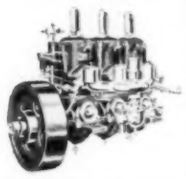
PIERCE-BUDD CO., Bay City, Mich. Two cylinders, two cycle, jump spark ignition, bore 4 in., stroke 4 in., height from center of shaft 14 in., diameter of fly wheel 14 in., weight 170 lbs. The water jackets are of copper, reducing weight of engine. Circulation by rotary gear-driven pump, timer mounted on vertical gear-driven shaft.



Pierce 12 and 16 H. P. Models.

(*With complete equipment* $224 *and* $276. *With reverse gear* $268 *and* $320.)

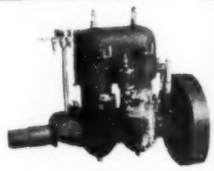
PIERCE MOTOR CO., Racine, Wis. Two cylinders, two cycle reversing, jump spark ignition. The 12 H. P. model has a bore of 5 in. and a stroke of 5 in., speed 500 r.p.m., diameter of fly wheel 17¼ in., height from center of shaft 20 in. The 16 H. P. has a bore of 5¾ in., and stroke of 5¾ in., speed 500 r.p.m., diameter of fly wheel 18 in.



The 11 H. P. Eagle.

(*Engine complete with electrical and boat equipment* $260.)

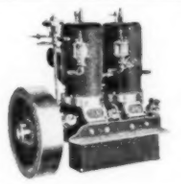
PROGRESSIVE MFG. CO., Torrington, Conn. Three cylinder, two cycle, jump spark ignition, bore 3¾ in., stroke 4 in., diameter of fly wheel 14 in., weight 370 lbs. The 12 H. P., 2 cylinder model has a bore of 4⅛ in., stroke 5 in., speed 700 r.p.m., weighs 430 lbs., and sells for $215, with complete equipment as above.



The 6 H. P. Racine.

(*Motor with complete equipment* $200; *salt water* $220.)

RACINE BOAT MFG. CO., Muskegon, Mich. Two cylinders, two cycle, jump spark ignition, speed 500 r.p.m., diameter of fly wheel 15 in., weight 325 lbs. The 8 H. P., 2 cylinder model also comes within this class selling for $275 with complete equipment. It develops its power at 450 r.p.m. Diameter of fly wheel 16½ in., weight 375 lbs.



Three Red Wing Models.

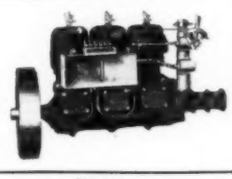
(8 *H. P., 2 cylinder with complete equipment* $300. 8 *H. P., single cylinder* $225, *and 7 H. P., 2 cylinder* $240.)

RED WING BOAT MFG. CO., Red Wing, Minn. High speed two cycle, jump spark ignition, cylinders cast separately, dimensions of the 8 horse two cylinder: bore 4 in., stroke 4 in., weight 300 lbs. Dimensions of the 8 horse single cylinder: bore 5 in., stroke 5 in., weight 225 lbs. The 7 H. P., 2 cylinder: bore 4 in., stroke 4½ in., weight 340 lbs.

7 H. P. Regal Heavy Duty.

(*Motor complete* $266.40.)

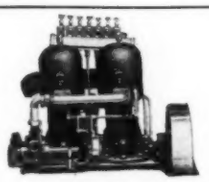
REGAL GASOLINE ENGINE CO., Coldwater, Mich. Four cycle, jump spark or make-and-break ignition, bore 6½ in., stroke 7 in., diameter of crank shaft 2¼ in., speed 400 r.p.m., weight 755 lbs. The 8 H. P., 2 cylinder high speed motor also comes within this class selling for $266.40. It also is of the four cycle type with bore and stroke of 4½ in., normal speed 800 r.p.m., and weight 495 lbs.



The Roberts 15 H. P.

(*Motor complete* $260.)

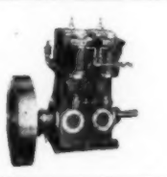
ROBERTS MOTOR CO., Sandusky, Ohio. Three cylinders, two cycle, jump spark ignition, bore 4 in., stroke 3½ in., crank shaft 1¼ in., bearings 3¼ in. long, diameter of fly wheel 14 in., speed 150 to 1,200 r.p.m., develops 15 H. P., at 900 r.p.m., weight 295 lbs., lubrication is by mechanical force feed oil and the controls are mounted on vertical shaft with timer.



The 8 H. P. Rochester.

(*Motor complete with electrical equipment* $245; *with bronze propeller equipment including reverse clutch* $300).

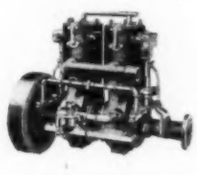
ROCHESTER GAS ENGINE CO., Rochester, N. Y. Two cylinders, two cycle, jump spark ignition, bore 3¾ in., stroke 3½ in., height from center of shaft 12½ in., diameter of fly wheel 12½ in., weight 260 lbs., water circulation by rotary gear-driven pump, lubrication by multiple sight feed oiler.



10-12 H. P. Shortt.

(*Motor complete with electrical equipment* $300.)

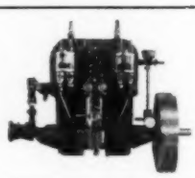
W. M. RYAN CO., 314 S. Canal St., Chicago, Ill. Although of the two cycle type in that it receives a power impulse every revolution, by a unique feature of the design there is also a scavenging every revolution. Two cylinders, jump spark ignition, bore 4 in., stroke 5 in., speed range from 150 to 1,000 r.p.m. controlled by one lever, weight 448 lbs.



The 12 H. P. Sagamore.

(*Engine complete* $280; *propeller outfit* $24; *electrical equipment* $6.)

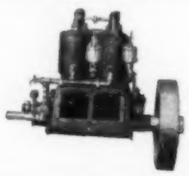
SAGAMORE ENGINE CO., 74 Sagamore St., Lynn, Mass. Two cylinders, two cycle, make-and-break ignition, bore 4⅞ in., stroke 5 in., speed 550 r.p.m., weight 520 lbs. The 10 H. P., 2 cylinder model has a bore and a stroke of 4¾ in. and 5 in., and sells for $255. The 12 H. P. single cylinder model with bore of 7 in. and stroke of 6¼ in. sells for $245. The 20 H. P., single cylinder with 8 in. bore and 7¼ in. stroke sells for $300.



Miss Simplicity 16 H. P.

(*Reversible motor complete with electrical and boat equipments* $300.)

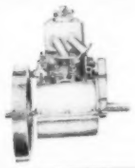
ST. JOSEPH MOTOR CO., St. Joseph, Mich. Two cylinders, two cycle, jump spark ignition, bore 5¼ in., stroke 4⅞ in., normal speed 700 r.p.m., diameter of fly wheel 18 in., diameter of three bladed propeller 22 in., weight 345 lbs., cylinders cast en bloc, timer mounted on vertical, gear driven shaft.



Schaefer 10 H. P.

(*With electrical and boat equipments* $250.)

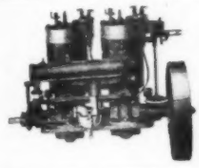
SCHAEFER MFG. CO., Berlin, Wis. Two cylinders, four cycle, jump spark ignition, automatically operated intake valve, bore 5 in., stroke 5 in., speed range 100 to 1,300 r.p.m., normal 525 r.p.m., weight 430 lbs. The 10 H. P., 2 cylinder with mechanically operated intake valve, 5 in. bore and 5½ in. stroke, sells for $300. The 7½ H. P., 3 cylinder model sells for $278.



7 H. P. Scripps Heavy Duty.

(*Motor complete* $250.)

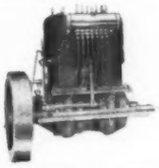
SCRIPPS MOTOR CO., Detroit, Mich. Single cylinder, four cycle, jump spark ignition, bore 5½ in., stroke 6 in., normal speed about 500 r.p.m., water circulation accomplished by means of a rotary gear-driven pump. Practically all working parts are enclosed in the crank case and are accessible by means of a large hand hole wth easily removable cover.



The K. & D. 10 H. P. Motor.

(*Motor complete with boat and electrical equipment* $208.)

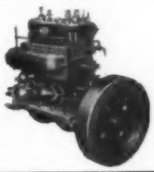
SENECA FALLS ENGINE & SUPPLY CO., Seneca Falls, N. Y. Two cylinders, two cycle, jump spark ignition, bore 4½ in., stroke 4 in., speed from 200 to 600 r.p.m., diameter of fly wheel 17 in., weight 335 lbs., cylinder heads removable, timer mounted on vertical, gear-driven shaft. This model may be had with reversible propeller for $230.



The 16 H. P. Springfield.

(*Motor complete* $300.)

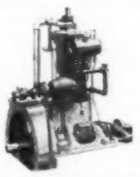
SPRINGFIELD MOTOR CO., Springfield, Mass. Two cylinders, two cycle, jump spark ignition, bore 7 in., stroke 6 in., normal speed 350 r.p.m., height from center of shaft 23 in., diameter of fly wheel 20 in., cylinders cast en bloc, lubrication by multiple sight feed oiler. The make-and-break system of ignition may be had if desired.



The 14 H. P. Stanley.

(*Motor complete* $200. *With electrical and boat equipment* $254.20.)

THE STANLEY CO., 79 Milk St., Boston, Mass. Two cylinders, two cycle, jump spark ignition, bore 5¼ in., stroke 4½ in., normal speed 600 r.p.m., weight 475 lbs. The 10 H. P., 2 cylinder model with make-and-break ignition has the same bore and stroke and is otherwise similar. The price is $200, with equipment $247.40.



The 6-9 H. P. Strelinger.

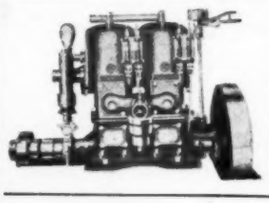
(*Motor complete* $285.)

THE STRELINGER MARINE ENGINE CO., 46 Congress St., East, Detroit, Mich. Single cylinders, four cycle, make-and-break ignition, bore 6 in., stroke 6 in., diameter of crank shaft 2¼ in., diameter of fly wheel 22 in., height from base 28 in., normal speed 500 r.p.m. The 4-6 H. P. has a bore of 4½ in. and stroke of 6 in., normal speed 600 r.p.m., and sells for $205.

10-12 H. P. Syracuse.

(*Engine complete* $265.)

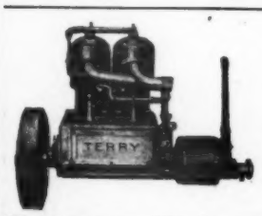
SYRACUSE GAS ENGINE CO., Syracuse, N. Y. Two cylinders, two cycle, jump spark ignition, removable cylinder heads, bore 4 in., stroke 4 in., diameter of fly wheel 14 in., height from center of shaft 15 in., weight 235 lbs. The water from the jackets is utilized to cool the exhaust, circulation being accomplished by a rotary gear-driven pump. The spark and throttle control are mounted on a shaft.



The T. & M. 8 H. P. Reversible.

(*Motor complete with electrical and boat equipments* $205; *for salt water* $210.)

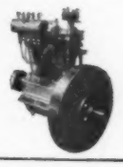
TERMAAT & MONAHAN CO., Oshkosh, Wis. Two cylinders, two cycle, jump spark ignition, bore 4 in., stroke 4 in., timer mounted on vertical gear-driven shaft, weight 300 lbs., reversible. The complete line of T. & M. motors is carried by the Toppan Motor Company, 9 Haverhill St., Boston, the Eastern distributor for Termaat & Monahan Company.



The 5 H. P. Terry.

(*Motor complete* $250.)

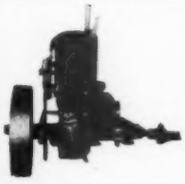
TERRY ENGINE CO., Ulmer Park, Brooklyn, N. Y. Illustrated herewith is the 10 H. P. Terry, the cylinders of which are the same size as the 5 horse model. Four cycle, jump spark ignition, bore 4½ in., stroke 5 in., diameter of crank shaft 1¾ in., diameter of fly wheel 18 in., normal speed 600 r.p.m., weight approximately 250 lbs., turns 16 in., three bladed propeller.



10 H. P. Trebert.

(*Motor complete with coil* $204.)

TREBERT GAS ENGINE CO., Rochester, N. Y. Two cylinders, four cycle, jump spark ignition, bore 4¼ in., stroke 5 in., speed range 75 to 1,200 r.p.m., normal 800 r.p.m., weight 270 lbs. The 25 H. P., 2 cylinder, two cycle model with a bore of 6¼ in., and stroke of 6 in. sells for $272.25. The normal speed of this motor is 650 r.p.m.



Two Truscott Models.

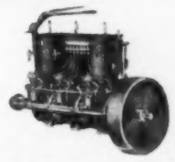
(*5 H. P. model with equipment including reversible propeller* $225. *7 H. P.*, $285.)

TRUSCOTT BOAT MFG. CO., St. Joseph, Mich. The 5 H. P. model illustrated herewith develops its power at 570 r.p.m., and weighs 260 lbs. The height from center of shaft is 20 in. The 7 H. P. model weighs 330 lbs. and develops its power at 550 r.p.m.

The 30 H. P. Tuttle Special.

(*Motor with complete equipment* $300.)

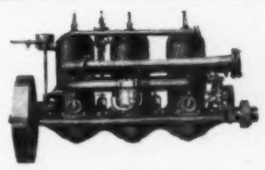
D. M. TUTTLE CO., Canastota, N. Y. Three cylinders, two cycle, jump spark ignition, bore 4½ in., stroke 4½ in., speed 1,000 r.p.m. The 18-20 H. P., 2 cylinder model with bore and stroke of 4½ in., and speed of 1,000 r.p.m. sells for $225 with complete epuipment. These are new models with double inlet and exhaust ports.



The 15 H. P. Vim Medium Speed.

(*Complete with ignition and propeller outfits* $270.50. *Extra for salt water* $8.50.)

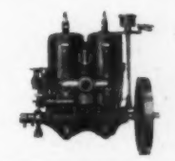
THE VIM MOTOR MFG. CO., Sandusky, Ohio. Three cylinders, two cycle, jump spark ignition, bore 4 in., stroke 4 in. The 12 H. P., 2 cylinder heavy duty model has a bore and stroke of 5 in., speed 450 r.p.m., and sells for $226. The 18 H. P., 2 cylinder, medium speed model of 5 in. stroke and 5 in. bore sells for $221.



10-14 H. P. Waterman.

(*With electrical and boat equipment* $225; *with reversing propeller* $258; *with Baldridge reverse gear* $253.)

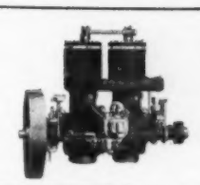
THE WATERMAN MARINE MOTOR CO., Detroit, Mich. Two cylinders, two cycle, jump spark ignition, bore 4½ in., stroke 4 in., normal speed 500 r.p.m., weight 259 lbs. Timer mounted on vertical, gear-driven shaft. This motor was designed for hard continuous service.



Two Watertown Models.

(*8 H. P.*, $250; *10-12 H. P.* $275.)

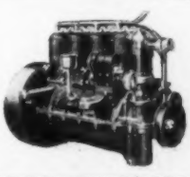
WATERTOWN MOTOR CO., Watertown, N. Y. The smaller of these two models has a bore of 3¾ in. and a stroke of 3¾ in. Normal speed from 800 to 1,000 r.p.m., weight 190 lbs., diameter of fly wheel 13¼ in., height from center of shaft 15½ in. The 10-12 horse model with auxiliary valves, also weighs 190 lbs.



25-28 H. P. Rutenburg.

(*Motor complete* $275.)

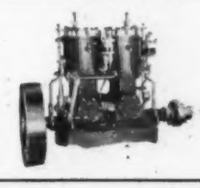
THE WESTERN MOTOR CO., Marion, Ind. While the Rutenburg motor was designed primarily for automobile use it is being used extensively for marine work. Four cylinders, four cycle, jump spark ignition, 4 in. bore, by 4 in. stroke, normal speed approximately 1,500 r.p.m. Self contained oiling system and equipped with magneto.



10 H. P. Universal.

(*Motor complete with jump spark ignition,* $215; *with make-and-break ignition* $220.)

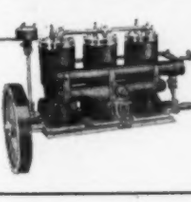
WEST MYSTIC BOAT CO., West Mystic, Conn. Two cylinders, two cycle, jump spark ignition, removable cylinder heads, bore 5¼ in., stroke 5 in., height from center of sraft 19¾ in. Type CC 2 cylinder, 10 H. P., type E single cylinder, 10 H. P., and an 8 H. P., single cylinder model also come within this class selling for $210, $215, and $225 respectively.



15 H. P. Wonder.

(*Motor complete with electrical equipment* $290; *with propeller equipment* $300.)

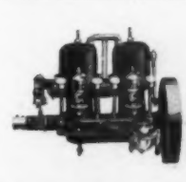
WONDER MFG. CO., Syracuse, N. Y. Three cylinders, two cycle, jump spark ignition, removable cylinder heads, bore 4 in., stroke 3¾ in. The 12 H. P., 2 cylinder model is similar to the one illustrated and sells for $245, $260, and $275, with the same equipments. The bore is 4⅝ in., stroke 4½ in. and weight 285 lbs.



The Weco 15-18 H. P.

(*Price with complete equipment for salt water* $270.)

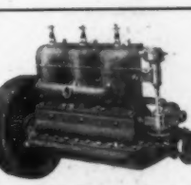
C. T. WRIGHT ENGINE CO., Greenville, Mich. Two cylinders, two cycle, jump spark ignition, bore 5 in., stroke 5 in., normal speed 500 r.p.m., diameter of fly wheel 19 in., weight 450 lbs., size of base 18 in. by 26 in. This motor is reversible but may be had with a reversible bronze propeller for $285.



The 10-12 H. P. Wright.

(*Motor complete with electrical and boat equipment* $240; *extra for salt water* $11.)

WRIGHT MOTOR WORKS, Buffalo, N. Y. Three cylinders, two cycle, jump spark ignition, bore 3½ in., stroke 3½ in., speed 100 to 900 r.p.m., weight 225 lbs. The 10-12 H. P., 2 cylinder model also comes within this class selling for $265 completely equipped.



The 20 H. P. Fox.

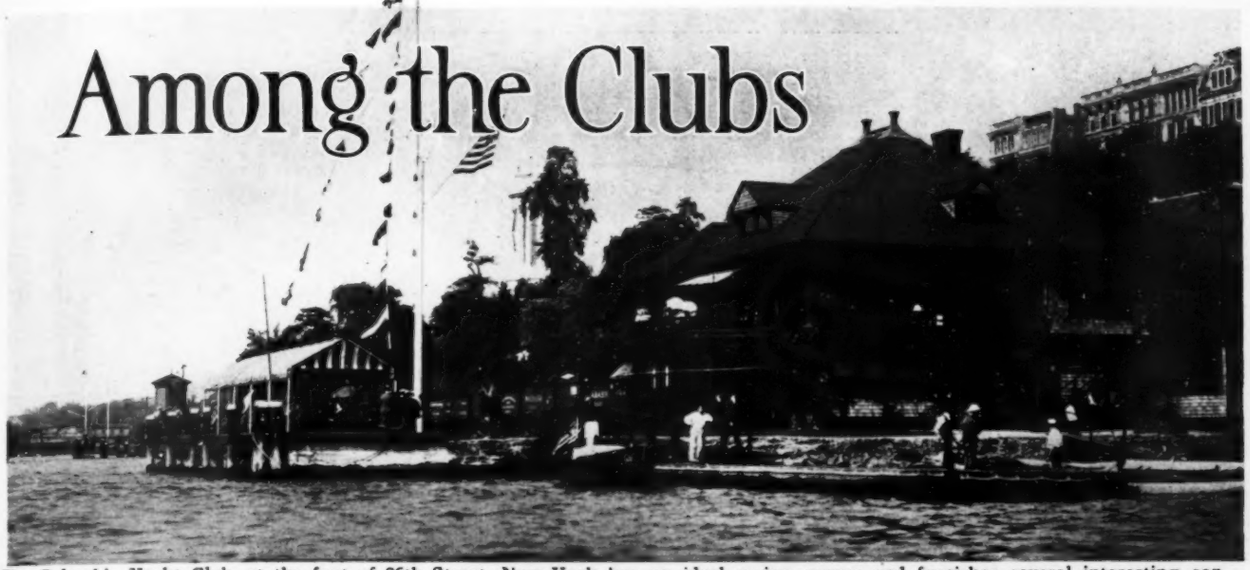
(*Motor complete* $300.)

DEAN MFG. CO., Newport, Ky. Two cylinders, two cycle, jump spark ignition, bore 5 in., stroke 5 in., timer mounted on vertical gear-driven shaft, multiple sight feed oiler, water jacketed exhaust manifold. The 14 H. P., 2 cylinder model has a bore of 4½ in. and stroke of 4 in. and is similar to the 20 H. P. model. The price is $220 complete.

The motor boat race from New York to Albany and return.

The start, shown in the upper illustration, was made on the evening of July 2nd, from a point in the Hudson River opposite the New York Motor Boat Club. From left to right in the middle of the page are shown Elmo II, Nantucket and Consort, the winners of first, second and third places respectively. Below is shown the float of the New York Motor Boat Club shortly before the start of the race. For results see page 46.

Among the Clubs



The Columbia Yacht Club, at the foot of 86th Street, New York, has an ideal racing course and furnishes several interesting contests during the season.

Buffalo Yacht Club, Buffalo, N. Y. One of the most important power boat contests of the season will be run upon August 20th by this club and the event will be rendered conspicuous by reason of the value of the trophies and the reputation of the boats entered. A handsome trophy valued at $500 has been offered by Frank B. Hower, former president of the American Automobile Association and ex-Commodore of the Buffalo Yacht Club, and the Buffalo Yacht Club have offered two trophies for second and third place. The course will be a triangular one, measuring between 40 and 50 miles in length. On account of the favorable character of the course it is anticipated that some new records will be established, especially since such entries as Courier II, Intruder, Dixie II, Hoosier Boy, and others with a national reputation are expected to race.

Topinabee Yacht Club, Topinabee, Mich. This club was formed upon June 28th by the power boat owners of this section and the following officers were elected: President, Dr. W. G. Rice; secretary, S. R. Thomas; treasurer, J. E. Kilborn. The burgee is blue and white with the letters T. Y. C. upon it.

Atlantic Deeper Water Ways Association. A convention of this association will be held on August 31st at Providence, R. I., and will continue for four days. If present arrangements are carried out, the convention will be made one of the greatest gatherings of pleasure yachts known and power boating will come in for a large share of consideration. The one hindrance in the way of pleasure craft reaching Providence is the fact that it will be necessary to take small vessels to Narragansett Bay by outside routes, a fact that will be used as one of the arguments for the necessity of completing an inland route from Maine to Florida.

Lake Hopatcong Yacht Club, Landing, N. J. A souvenir program of events held under the auspices of the Lake Hopatcong Yacht Club with a color view of the club house upon the front cover has been issued for the season of 1910. It includes a complete list of the officers, board of trustees and committees of the club and contains rules and regulations governing races for the season.

Hudson-Fulton Yacht Club, New York City. Final plans have been made for the erection of a fine new club house on the North River at West 104th Street at the point in Riverside Park formerly known as the Willows. The foundation will be upon piling extending into the river 80 feet and along the shore line 100 feet. This club was organized last September to commemorate the achievements of Robert Fulton and Henry Hudson and its membership now includes over 200. The club house will be connected by a foot bridge with Riverside Park over the tracks and will be ready for occupancy in a short time.

Motor Boat Club of America, New York City. The regatta committee of this club has decided upon the disposition of the racing cup offered as a prize for the coming International Motor Boat Races upon August 20th, known as the Smart Cup. This trophy will be awarded to the motor boat making the fastest time in any single race and is causing a great deal of interest, owing to the fact that it is an unusual thing for an Englishman to give a cup for a race in American waters. A number of very fast boats will enter the elimination trials for the Harmsworth Trophy, among which are Intruder and Dixie, owned by F. K. Burnham; Restless, owned by J. A. Cheeseborough, and another craft which is being constructed by a syndicate composed of four members of the club. A new racer built upon novel designs and owned by Morris M. Whitaker is expected to enter as well as several other boats from the Middle West, such as Hoosier Boy and the Courier II.

Detroit Motor Boat Club, Detroit. The Pilot, the official organ of the Detroit Motor Boat Club, has made its appearance and will be published on the first of every month in the interests of the members of the club. The magazine contains lists of officers and committees of the club, programs of events of the season and a great deal of helpful advice to motor boatmen. The editor-in-chief is Frank W. Farnsworth and the advertising manager is Frank H. Harvey.

Tarrytown Yacht Club, Tarrytown, N. Y. This club has recently installed a complete wireless apparatus upon the club property and will be able to receive news from all racing events in the shortest possible time. A great deal of interest is being taken in racing along this part of the Hudson and the membership of the club is increasing at a rapid rate. One of the latest boats to be added to the fleet was just launched from Driscoll's yards and her 60-80 h.p. motor is expected to drive her at a speed better than 26 miles per hour.

Chippewa Yacht Club, Chippewa Bay, N. Y. The club book for 1910 which has recently been issued shows a substantial increase in membership and in the number of yachts registered. Since this club is located in the heart of the Thousand Islands and in one of the greatest motor boat racing sections in the country, a number of world famous boats are numbered in the fleet. 39 steam yachts ranging in length from 40 to 201 feet, and 154 motor craft ranging in length from 18 to 75 feet and of from two to 350 h.p. are registered in the club. The officers are as follows: Commodore, C. M. Englis; vice-commodore, W. H. Post; rear-commodore, Hon. E. B. Hawkins; secretary-treasurer, J. G. Knap; judge of gold cup races, S. G. Averill.

Thousand Islands Yacht Club, Alexandria Bay, N. Y. Following is the program for the 1910 season of the club: The Club band will play at the club house every Saturday and Wednesday evening, until September 3, inclusive. August 20 to 27 inclusive, annual regatta week for Thousand Islands Yacht Club; Tuesday, August 9, ladies annual tea, at the club house; August 4, 5 and 6, American Power Boat Association Challenge Cup races over the Thousand Islands Yacht Club course. In this race will be seen competing for the cup several of the fastest motor boats in the world, including Dixie II, Intruder, and several others above the 30-mile record. Wednesday, August 17, the annual ball will be held. This is one of the largest society events on the river during the entire season and one that is looked for by the members of the different clubs all along the river. It is proposed to hold power boat races once each week unless something unforeseen prevents. Special efforts are being made to maintain the high standard of excellence in cuisine, and the golf links at the golf club are in excellent condition and are in charge of H. F. Heighton, who will give instructions if desired. The yacht and golf clubs are both connected with telephone service.

Mississippi Valley Power Boat Association. The next regatta of this association will be held upon July 4th and 5th, 1911, at Dubuque, Ia., since no other city asked for the regatta and the committee accepted the Dubuque invitation at the recent annual meeting. The following officers were elected: President, W. F. Bischoff, Muscatine, Ia.; vice-president, W. H. Gosch, Davenport, Ia.; second vice-president, E. Corsepius, Fort Madison, Ia.; secretary, R. H. Coombs, St. Louis; treasurer, William Kelso, Bellevue, Ia. The executive committee will consist of Dr. J. W. Dixon, Burlington, Ia.; Thomas Webb, Peoria, Ill.; and F. C. Seaman, Clinton, Ia. Immense crowds witnessed the races held by the association at Peoria from July 4th to 6th and they were a great success in every way.

Winthrop Yacht Club, Winthrop, Mass. The club book for 1910, handsomely bound in white and gold, has been issued and contains the constitution and by-laws of the organization, together with a list of members, officers and committees, and a register of yachts belonging to the fleet. The officers of the club are as follows: Commodore, D. M. Wiseley; vice-commodore, F. L. Hodges; secretary, C. G. Bird; treasurer, J. J. Deveraux; fleet captain, C. T. Ellis; measurer, F. H. Byrne.

American Power Boat Association. This old and well-known organization has been growing with phenomenal strides during the past three months. There are today over 100 clubs in good standing and an individual membership of over 25,000. It seems as though the mark set by its officers, of 150 clubs and 35,000 members would be attained before their year of office expires. The character and aims of the Association are well known and appreciated by the motor boating fraternity in every part of the United States, since the Association has always stood for clean sport, uncontaminated by personal or selfish motives. There is even greater insistance upon this particular score than ever. The development and formation of local sections runs apace with the growth of the Association and the added value of opinions brought to its council by the chairmen of the local sections conduces to far greater stability and broadening of the work of the organization.

The New York-Albany-New York Race.

Distance, 270 statute miles = 234 nautical miles.

Boat.	Racing No.	Rating	Allowance	July 3rd, Rounding Time at Albany	Elapsed Time, Albany	Corrected Time, Albany	July 4th, Time of Finish, New York	Elapsed Time, Albany to New York	Total Time Elapsed	Corrected Time at Finish	Position at Finish	Owner	Club
Elmo II.....	3	38.16	1:57:42	12:17:56 P.M.	17:17:56	16:19:05	3:17:35 A.M.	14:59:39	32:17:35	30:19:53	1	F. D. Giles, Jr....	Audubon Y. C.
Nantucket	1	41.40	Allows.	12:08:40 P.M.	17:08:40	17:08:40	5:25:53 A.M.	17:17:13	34:25:53	34:25:53	2	John Meyer.....	Orum Y. C.
Consort	8	35.64	3:50:06	12:24:45 P.M.	17:24:45	15:29:42	10:06:20 A.M.	21:41:35	39:06:20	35:16:14	3	C. F. Chapman....	N. Y. Motor Boat Club
Kid II.....	6	36.90	2:51:50	3:37:42 P.M.	20:37:42	19:11:47	10:17:01 A.M.	18:39:19	39:17:01	36:25:11	4	C. H. Dugliss, Jr..	N. Y. Motor Boat Club
Twin Kid.....	10	33.66	5:22:55	4:35:42 P.M.	21:35:42	18:54:15	3:45:51 P.M.	23:10:09	44:45:51	39:22:56	5	P. A. Vallance....	N. Y. Motor Boat Club
Lillian	9	34.56	4:42:17	9:40:0 P.M.	26:40:0	24:18:52	4:11:25 P.M.	18:31:25	45:11:25	40:29:08	6	L. Walters.....	Hudson River Motor Boat Club
Monreve	5	37.62	2:21:58	4:06:45 P.M.	21:06:45	19:55:46	2:05:15 P.M.	21:58:30	43:05:15	40:43:17	7	E. E. Barney.....	N. Y. Motor Boat Club
*Imp	11	32.58	6:20:34	8:26:0 P.M.	25:26:0	22:15:43	7:25:0 P.M.	22:59:0	48:25:0	42:04:26	Finished after 7 P.M.	Arthur Haas.....N. Y. Motor Boat Club	
Polar Star.....	7	35.82	3:40:44	Did not finish.	Withdrew—Poughkeepsie.							Ralph Croft.....Audubon Y. C.	
Arlington II....	4	38.52	1:45:41	Did not finish.	Withdrew—Poughkeepsie.							Jos. Klipper..... N. Y. Motor Boat Club	
Leonie	2	40.68	0:24:15	Did not finish.	Withdrew—Albany.							J. L. Costello..... N. Y. Motor Boat Club	
Alfred S.....	12	28.98	10:03:53	Did not finish.	Withdrew—Milton.							H. Soeldner..... Orum Y. C.	
*Helen.....	13	26.82	12:49:0	Did not start.								F. P. Champlin....N. Y. Motor Boat Club	

*Open boats.

New York to Albany and Return.

This race was started at 7 P. M. July 2, under ideal weather conditions with calm water and a slight haze. The haze, however, soon closed in and the night was very black with a heavy fog, which accounts for the slow time made in the race. The boats encountered a number of accidents also, but none was serious. The Albany Yacht Club was ready with a supply of gasoline for the boats needing it and had men on the bulkhead to assist in loading it as the boats arrived. Consort was the only boat to come straight through to Albany, the others either grounding or anchoring for a time in the fog. The crew of Consort told at Albany of having passed Monreve high and dry upon the rocks at Schermerhorn and the committee were consequently surprised to see her pass fifth in the race at Albany. She did not stop for gasoline but threw a bottle ashore containing a report of her mishap. The craft was crowded upon a rocky beach by a steamer and the crew were obliged to wait for high tide before they could get the vessel off. The committee returned to the club house at New York at midnight, July 3, where about 30 members of the New York Motor Boat Club, by whom the race was run, waited all night for the finish. The first boat to be sighted reported hazy weather all the way down from Albany and a very dark night, making fast time almost impossible, although she covered the distance from Albany in 15 hours. Elmo II won both the time prize and the first prize, her nearest competitor, Nantucket, arriving a trifle over two hours later, 15 minutes and 53 seconds too late to win first prize through her time allowance. The third prize was won by Consort which arrived almost five hours later than Nantucket. An interesting feature of the race is the fact that eight of the twelve starters finished and none of the boats reported engine trouble. All the difficulty that was experienced was caused by the fog which even experienced river men admitted was very troublesome at that time. This was the second annual race to Albany and return held by the New York Motor Boat Club and proved to be one of the most popular events ever held. Had it not been for the unusual amount of fog it is quite probable that some records would have been made.

Atlantic City to Gravesend Bay.

Ilys, Com. J. G. N. Whitaker, owner, was the first to cross the finish line in the race from Atlantic City to the Atlantic Yacht Club at Sea Gate held upon July 14th. Ilys, which was also entered in the Bermuda race this year, left Young's Pier at Atlantic City at 8:17:17 A.M. and crossed the finish line at 6:17:23, having taken 10 hours, 2 minutes and 33 seconds to complete the 80 nautical miles. Mary C., Capt. Martin McWilliams, of the Sea Island Yacht Club, owner; Caroline, Capt. Frank M. Dennis, of the Brooklyn Yacht Club, owner; and Larkspur, Capt. J. A. Lucy, of the Yachtsmen's Club, owner, finished in the order named. Caroline and Mary C. finished only nine seconds apart, 45 minutes behind Ilys. The race was held under the direction of the Seaside Yacht Club of Atlantic City and the Atlantic Yacht Club of Sea Gate for a trophy offered by Fleet Captain Morton Wistar Smith, and was run under ideal conditions. The visiting yachtsmen were entertained at the Atlantic Yacht Club with a dinner with covers laid for 300 and an entertainment of local talent, including some well-known actors.

August 4, 5, 6: American Power Boat Association.—Gold Challenge Cup Races held at Alexandria Bay on the St. Lawrence River, Dixie II, representing the Thousand Islands Yacht Club, defending the cup.

August 6: Cleveland, O.—Long distance handicap cruising race held by Cleveland Power Boat Club.

August 8: Cleveland to Put-in-Bay and Return.—120 mile race held by Cleveland Power Boat Club.

August 13: Boston.—Open power boat race for boats from 30-40 ft. L. W. L. held by Boston Yacht Club.

August 13: Dorchester, Mass.—Races held by the Dorchester Yacht Club.

August 13-20: Narragansett Bay.—Race Week under auspices of Narragansett Bay Yacht Racing Association.

August 15: Ketchikan, Alaska to Puget Sound.—760 mile cruise for cruisers of two classes, 40 to 60 feet L. W. L. and over 60 feet L. W. L.

August 15, 16, 17: Huntington Harbor, L. I.—Elimination trials to select three boats to defend the Harmsworth Trophy.

August 20: British International Race.—Race for the Harmsworth Trophy, held in Larchmont harbor, on Long Island Sound, under auspices of the Motor Boat Club of America, the present holder of the trophy.

August 20: Watertown, N. Y.—Cruising race from Chaumont to Henderson, held by Crescent Yacht Club.

August 20: Boston.—Regatta held by New England Engine & Boat Association on Charles River.

August 20: Buffalo, N. Y.—Free-for-all contests over course of Buffalo Yacht Club.

August 20-27: Alexandria Bay, N. Y.—Annual regatta week held by Thousand Islands Yacht Club.

August 21: Cleveland, O.—Races for Ohio State Championship held by Cleveland Power Boat Club.

August 27: Chicago to Peoria.—Start of cruise of Columbia Yacht Club of Chicago.

August 28: New York.—Races held by New York Motor Boat Club.

August 29-September 24: Cincinnati.—Ohio Valley Exposition, with numerous motor boat races.

August 30-31: Western Power Boat Association.—Second annual regatta held at Peoria, Ill.

August 31-September 3: Providence, R. I.—Convention of Atlantic Deeper Waterways Association.

September 3-5: New Rochelle, N. Y.—Race from New Rochelle to Huntington, L. I., held by New Rochelle Yacht Club.

September 4: Larchmont Harbor.—Race for cruising motor boats around Long Island, held by Larchmont Yacht Club.

September 5: Chicago, Ill.—Annual regatta of Calumet Power Boat Club under auspices of Western Power Boat Association.

September 5: Hudson River Yacht Racing Assn.—Annual regatta held at Ossining, New York.

September 5: McKeesport, Pa.—Regatta held by McKeesport Launch Club.

September 17: Dighton, Mass.—Open regatta under auspices of Narragansett Yacht Racing Association.

September 17: Niagara Falls, N. Y.—Power boat race through the Whirlpool Rapids to Lewiston.

October 8: McKeesport, Pa.—Regatta held by McKeesport Launch Club.

New Things for Motor Boatmen.

New Attachments and Accessories That Are Offered to the Man With a Boat. The Month's Production of Devices Designed as Aids to Motor Boating.

[Under this heading will appear each month descriptions and, whenever possible, illustrations of the various devices designed to add to the pleasure and comfort of motor boating which have been brought out since the previous issue. It should be kept in mind that the department in any one issue is, as it were, only one month's instalment of the many useful things on the market, and that it will be well to consult the previous issues of MOTOR BOATING which will form, together, a very complete illustrated directory of the things the motor boatman needs. —In writing the makers of the articles shown, if our readers will mention MOTOR BOATING they will receive special attention.]

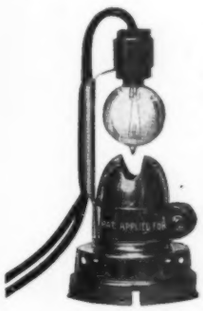


Fig. 1.—Newlin Hold-Tight Electric Attachment.

Newlin Hold-Tight Electric Attachment (Fig. 1).—W. D. Newlin, 1428 Michigan Ave., Chicago. By using this attachment the bulb is allowed to hang down, as shown in the illustration, thereby giving the filament a pendulum-like motion and preventing breakage. It also places the bulb in the same spot that the blaze from the oil burner would be, centering the light with all the reflectors. The bracket is made of spring brass, nickel plated and held securely to the burner by means of a small screw which allows it to be quickly removed when it is desired to use the oil burner. The price of this attachment is $1, or $1.50 equipped with tungsten bulb.

* * *

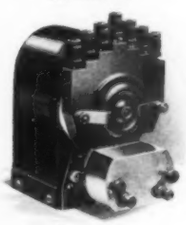


Fig. 2.—Briggs Magneto.

Briggs Magneto (Fig. 2).—Briggs Manufacturing Company, Elkhart, Ind. These magnetos are of the dual system, high tension type and are made in two, four and six cylinder designs. As can be seen from the accompanying photograph, they have plain surfaces and few outside working parts to collect dust and are easily kept clean and bright. When the circuit breaker is retarded to the extreme point it is stated that a fat and efficient spark will be produced from a quarter turn of the crank. A number of new features have entered into the construction of these magnetos and a guarantee of efficiency during the life of the motor is given for each instrument.

* * *

Fig. 3.—Albright Spark Plug.

Albright Spark Plug (Fig. 3).—Albright Ignition Co., Columbus, Ga. As may be seen in the illustration, the lower end of the center electrode of this plug is surrounded with knife edges which are crossed at right angles by the sharp edges shown upon the inside surface of the shell, thus concentrating the power to needle points and producing a large flame-like spark. The plug is stated to be proof against sooting and short circuiting, even should the walls of the air space become coated with carbon, and it needs cleaning only about as often as the engine needs overhauling. Regular sizes retail at $1.25 for mica insulated and $1 for porcelain insulated.

* * *

Way-A-Head Carbon Remover.—Way-A-Head Manufacturing Co., Kansas City, Mo. This carbon remover is stated to be chemically correct in its composition, and when injected into the cylinders of a gasoline motor it will make the cylinder walls as bright as new in less than an hour at a cost of 25c. per cylinder. Each can of the preparation is guaranteed to give satisfaction. It sells for $1 per quart, $2 per half gallon, and $3.50 per gallon.

* * *

Fig. 4.—Delco Distributor.

New Delco Distributor (Fig. 4).—Dayton Engineering Laboratories Co., Dayton, O. The main features of this distributor are the spark advance, which is by a spiral movement without the movement of wires, and the manner in which the contact maker is designed, doing away with the lag. Six cylinder, two cycle engines can be run at full speed with this device, it is stated, without firing at contact points and without missing an explosion. The Delco relay is used in connection with the distributor and the outfit is given a guarantee during the life of the engine.

* * *

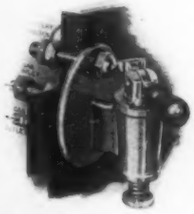


Fig. 5.—Auto-Lighter.

Auto-Lighter (Fig. 5).—Motor Specialties Co., 222 Eliot St., Boston. This device combines a gas valve and an electric contact so constructed as to work in unison, a single movement of the handle to the left admitting gas to the burners and igniting it. A turn in the opposite direction extinguishes the lights and the controller is automatically locked when in either the "on" or "off" position. The controller is the only moving part of the system and is the only part that is necessarily visible. It may be placed on the dash, as shown in the illustration, or in any other position desired.

Edison Storage Battery (Fig. 6).—Edison Storage Battery Co., Orange, N. J. The new Edison battery is now being furnished in sizes suitable for ignition and lighting purposes and involves the use of an entirely new combination, namely, nickel hydrate and iron oxide immersed in a solution of caustic potash. Through the use of this combination many troubles are eliminated. The structural material throughout is steel and the battery, while compact and light in weight, has a remarkably long life, cannot be injured by overcharging, and can be recharged to its full capacity at any time in 10 hours. The price is $40 for a five cell battery of 6½ volt, 90 ampere hour capacity, and $56 for a seven cell battery of nine volt, 90 ampere hour capacity.

Fig. 6.—Edison Storage Battery.

* * *

Tinol (Fig. 7).—Hess & Son, 1215 Filbert St., Philadelphia. This outfit consists of a can of solder in paste form which may be used in connection with any form of heat, although a small self-acting blow torch is furnished. Tinol consists of finely granulated tin and lead, each particle of which is covered with an oily, non-acid flux, and can be used by a person with no experience in soldering. All that is necessary is to apply a small portion of the soldering paste and heat in any convenient way. The torch furnished burns methylated spirit and gives a hot flame about four inches in length. It occupies very little space when the handles are folded. The price of the outfit is 50c. each for the Tinol and the torch.

Fig. 7.—Tinol Self-Acting Torch.

* * *

Bull Dog Carbon Remover (Fig. 8).—E. S. Michener, New Castle, Pa. This carbon remover consists of a chain which is inserted into the cylinder after a spark plug has been removed. About ¼ pint of kerosene is poured in at the same time and after the spark plug is replaced and disconnected from the ignition circuit, the motor is run for two or three minutes at a medium rate of speed from power developed by the remaining cylinders. The peculiar construction of the carbon remover loosens the hard dry scale upon the cylinder walls and it is blown out through the exhaust port. When the cylinder is clean the chain is removed by a special hook provided for the purpose. The price of the apparatus is 75c.

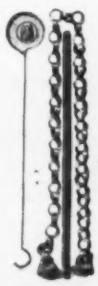


Fig. 8.—Bull Dog Carbon Remover.

* * *

Presto Auto Lighter (Fig. 9).—Motor Car Sales Company, Motor Mart, Boston. This lighter is manufactured by the Locke Regulator Company, of Salem, Mass., and embodies a system for automatically controlling the gas pressure from the tank and allowing the driver to light and extinguish his lamps from his seat. A small copper tube runs from the gas tank to its separator and then through the lighter to the lamps, the burners of which are connected by wire with the lighter so that one turn of the switch on the bulkhead creates the spark and at the same time turns on the gas. No adjustments are necessary and the apparatus will not get out of order. The price of the complete outfit is $15.

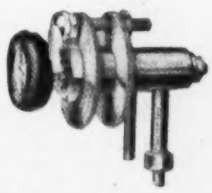


Fig. 9.—Presto Auto Lighter.

* * *

Alcohol Marine Stove (Fig. 10).—Alcohol Utilities Co., 40 E. 21st St., New York. These marine stoves are manufactured especially for cruisers of the smaller type although they are being used extensively upon larger vessels since they eliminate the bother common to the ordinary coal range. They are made with one, two or three burners and the fuel ordinarily recommended is Pyro denatured alcohol. The width over all of the three-burner stove shown in the illustration is 20½ inches; length, 31 inches; height of tank, 14 inches; height of plate, 6½ inches; height of rail, 8 inches; weight, 32 pounds. They may be equipped with an oven if desired and the prices are $5.50, $9, and $13 for a 1, 2, and 3-burner stove, respectively.

Fig. 10.—Alcohol Marine Stove.

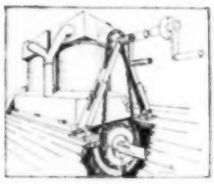


Fig. 11.—Hilton Rear Starting Device.

Hilton Rear Starting Device (Fig. 11).—Hilton Manufacturing Co., Providence, R. I. This device is intended to bring the crank up to a height where it can be used readily without bending down to the engine cockpit, and it can be applied either to the front or rear of the motor as desired. When the flywheel is forward the outfit is placed on the shaft at that point or else bolted to the flywheel. Another shaft projects from the top sprocket over the top of the motor and through the bulkhead. To the end of this is attached a Hilton Safety Crank which eliminates danger from back kick. The outfit is geared two to one so that a heavy engine is comparatively easy to start.

* * *

Fig. 12.—Williamson Electric Flexilyte.

Williamson Electric Flexilyte (Fig. 12).—L. A. Williamson Company, 79 Milk St., Boston. This is a portable electric light which is adjustable, compact and designed especially for use where space is limited. The instrument consists of a case containing about 15 feet of lamp cord, an attaching plug, and a crank for winding the cord, on the center portion which is a lamp socket. The cord can be unwound to any desired length and held fast by means of a sliding catch. The socket will carry a standard bulb and the case is so designed that it will not mar a polished surface. It is small enough to be easily carried in the pocket and the price complete is $5.

* * *

Fig. 13.—Day Safety Spark Plug.

Day Safety Spark Plug (Fig. 13).—George F. Day, 21 Haverhill St., Boston. The particular feature of this plug is the extension of the body or bushing up over the core, thus protecting it from rain, spray or accidental blows. After being mounted on the cylinder the plug can be easily taken apart and the core removed for inspection or cleaning without the use of tools. The plug is exceptionally well made and the case in which the core is mounted is heavily nickel plated, or it may be finished in either plain or polished brass. The price of the plug in nickel finish is $3, in polished brass, $2.50, and in plain brass, $2.

* * *

Fig. 14.—Rhoades Unit Spark System.

Rhoades Unit Spark System (Figs. 14 and 15).—New York Coil Co., 338 Pearl St., New York. This system consists of a mechanical device which is mounted on the time shaft of the engine for the purpose of closing an electrical circuit through a specially built non-vibrating single coil, and to break the contact so as to produce a hot and powerful spark in the proper cylinder at the proper time. A solid hard rubber cover encloses the working parts and also serves as the distributor. Platinum contacts are used and the system is said to be very economical in the use of batteries. But one adjustment is provided and there are only four moving parts in the entire construction. The whole system is enclosed in a space measuring 3 by 3 inches and six or eight dry cells are the only source of current necessary.

* * *

Fig. 15.—Rhoades Spark System with Cover Removed.

Noank Submerged Exhaust.—Noank Motor Co., Noank, Conn. This instrument is designed to permit a motor to exhaust under water not only without loss of power, but at the same time increasing the speed of the motor from 20 to 50 revolutions. This exhaust is manufactured upon scientific principles and is made in one piece, working similar to a steam injector. The gases are forced out by a stream of water flowing through the outlet when the boat is in motion and there is said to be no back pressure. The device is placed about four inches below the waterline when the boat is at rest and a pipe runs from the engine to an expansion chamber above the waterline. The price for the complete outfit, including expansion tank, hose and clamps is $12, or the exhaust device alone may be secured for $8.

* * *

Fig. 16.—Phinney-Walker Keyless Clock.

Phinney-Walker Keyless Clock (Fig. 16).—The feature of this clock is the rim-winding device, making a key unnecessary, and by reason of the double case, since the movement is enclosed in an extra inner case, it is rendered both moisture and dust proof. The clock is fitted with an eight-day movement, has seven jewels, hardened, ground and polished steel pinions, compensating balance and Brequet hair spring. Several different sizes and grades of rim-winding clocks are made, ranging in price from $10.50 to $25. The illustration shows the method of winding the clock by turning the rim once a week.

Bayonet Lock Socket (Figs. 17 and 18).—Willard Storage Battery Co., Cleveland, O. A new lamp socket, as shown in the illustration, has just been brought out, and the principal feature is the fact that it is not dependent upon friction to hold the lamp in position. The pin upon lamps fitted with the Edi-Swan base engages a bayonet catch on the socket and the lamp is firmly locked in place by substantial plungers which also carry the current of the lamp. For searchlights a socket is used which slips into a sleeve at the apex of the parabolic reflector, and for ordinary running lights a double end socket is placed in a vertical position, one end carrying the lamp and the other engaging an attachment also fitted with pins similar to those on the lamp base.

* * *

Wizard Lighting Battery.—Multiple Engineering Co., 313 W. 53d St., New York City. This battery is built especially to furnish a powerful, steady current for lighting side lights, tail lights, dome lights and headlights of automobiles and motor boats and furnishes a very brilliant light. It is very clean in its operation and is therefore a most convenient form of illumination. The batteries are made in six volt, 60 ampere hour capacity for ordinary use although special sizes may be had.

* * *

Barnard Campers' Tools (Fig. 19).—Barnard Specialty Co., Los Angeles, Cal. This instrument is most convenient for cruisers or small launches inasmuch as it can be stowed away in a locker or under the deck, taking up very little room. As can be seen from the illustration, the tool combines a shovel, a pick and a hatchet and is an especially useful article to carry on board when the boat is used for camping trips. All the parts are made to conveniently fit into one implement or they can be easily detached to form another. All parts telescope and the total length when open is 32 inches and when closed, 22 inches. The price is $5.

* * *

Hart Instantaneous Gas Lamp Igniter (Fig. 20).—Hart & Fuller, Hartford, Conn. This device is so designed that there is no danger of flooding the lamps with gas, since the flow is easily controlled by a small switch placed upon the edge of the coaming or on the bulkhead. The igniter itself is placed at right angles to the burner and the contact is made the instant that the gas reaches the burner. It is of standard size and will fit any burner. The switch is a specially constructed three-pole, high tension switch, of single wire construction and will carry the same current that goes to the motor. A spring in the switch holds the pole at neutral position after the contact has been made. The price of the complete outfit is $6.50.

* * *

Hall Direct Connected Lighting Unit (Fig. 21).—Hall Gas Engine Manufacturing Company, Byesville, O. This device is intended primarily to furnish an electric lighting plant for club houses, boat houses, or motor yachts of the larger sizes. As can be seen from the photograph, the apparatus consists of a motor connected direct to a dynamo. The entire outfit occupies but little space, and since the motor has two cylinders, horizontally opposed, it is practically noiseless and runs very smoothly. A sight feed oiler is placed above the cylinders and the motor is designed to run for long periods without attention, making it a very desirable one for its purpose. The outfit is made in various sizes from 3 to 50 horsepower.

* * *

Doehler Oil Cup (Fig. 22).—Doehler Die Casting Company, Brooklyn, N. Y. These oil cups are easily applied with a few turns of a screw-driver and are simple to operate, inasmuch as only one hand is required. The spout of the oiler may be inserted under the lid without any difficulty, since the lid is held in place by a spring and returns to its position when the oiler is removed. The lid protects the cup at all times and no dirt is able to enter. The cup may be transformed into a slow-feeding cup by inserting a wick or by filling with grease. The illustration shows a sectional view of the cup. They are made in four sizes, selling for from $6 to $14 per hundred.

Fig. 17.—Bayonet Lock Socket for Searchlight.

Fig. 18.—Bayonet Socket for Running Lights.

Fig. 19.—Barnard Campers' Tool.

Fig. 20.—Hart Instantaneous Lamp Lighter.

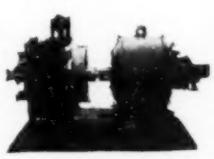


Fig. 21.—Hall Lighting Unit.

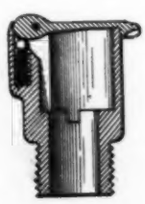


Fig. 22.—Doehler Oil Cup.

Mahapa II is a development of the 90-foot Viator and possesses the fine lines of her stern.

Mahapa II, an 85-Foot Cruiser.

A LARGE cruising motor boat, designed by Messrs. Cox & Stevens, and built by Matthews Boat Company, of Port Clinton, has just been delivered to Mr. H. A. Parsons, of Cleveland, Ohio. The name of this new boat is Mahapa II, and she is a development of the 90-foot power boat Viator, also designed by Messrs, Cox & Stevens, which has proved very successful.

This design shows the present tendency of yachtsmen to depart from the narrow low-sided vessels with long overhangs forward and aft, and strive for the maximum of accommodation and seaworthiness obtainable on a given overall length, thus reducing the cost of operation by the absence of unnecessary gear on deck, and at the same time producing what is now more and more considered to be the ideal, combining simplicity in every detail with solidity and staunchness. This type of vessel, of which the Viator was the first well-known example, has the straight stem forward, an exceedingly full forward deck line, giving great flare to the sections, good beam, the breadth being carried well aft, and associated with an elliptical steamer stern, giving the maximum of room on deck worked into construction now adopted below water for seagoing steamers, in which the main body of the vessel is carried to the after end of the waterline and the rudder is hung below this.

Mahapa II is of the following dimensions: Length over all, 85 feet; beam, 14 feet; draft, 4 feet. Her power consists of two 4 cylinder, 60 h.p. Craig engines, situated amidships, in a compartment entirely separated from the rest of the vessel by steel bulkheads. In this compartment are placed the fuel tanks, which hold 1,000 gallons; also a direct connected electric light set for lighting the vessel throughout, including a searchlight. It further contains all the necessary lockers, transoms, etc., for the use of the engineer. This compartment is well ventilated by a skylight over it, and a large ventilating stack in which the engine exhausts are placed, producing a suction that will change the air in the engine room in a few minutes when the vessel is under way.

The owner's quarters are directly aft of the engine room, and consist of a large state-room the full width of the vessel, having on the starboard side a double built-in berth, and on the port side a sofa and wardrobe. This room also contains a large dressing case or bureau, with plate glass mirror and two seats, which are used also as lockers.

A door from the owner's state-room opens into a passageway which connects with the stairs running to the deck. The owner's room also connects directly with the bathroom, situated on the port side of the passage. The floor of this room is tiled, and the room contains a 5 foot 6 inch bathtub, stationary wash basin, lockers, toilet, etc. On the starboard side of the passageway, opposite the bathroom, is a single state-room, having built-in berth with drawers underneath, a bureau and seat arranged as locker.

The after portion of the vessel is utilized for a double state-room, which opens into the passage, and thus has access to the bathroom. This room has a built-in berth on each side with drawers under, bureau, plate glass mirror and two wardrobes, and is well ventilated by an overhead skylight, as are all the other spaces below deck.

The dining room is situated in the deck house, which is larger than usual on a vessel of this size, the dining room itself being 11 feet long and having good head room. The after portion of the deck house is utilized as a galley and pantry, combined, making the service of meals very simple. Access to the dining room is had on the starboard side of the deck house by means of a small lobby, which also connects with the galley.

The crew's quarters are below, forward, and unusually commodious. The captain and the engineer each have a separate room, and all of these rooms are in a space extending the whole length of the vessel, used as a mess room and storeroom, and also having a bath for the use of the crew. Forward of this space comes the forecastle, having the necessary pipe berths for the crew connecting with the crew's toilet, which is in a separate compartment by itself.

The construction of this boat is of the best, planking being of yellow pine, frame, keel, and deadwood of selected oak, fastening being of copper or composition. The entire deck house is finished in selected Honduras mahogany, and all the skylights, hatches, hand rails, etc., are also mahogany.

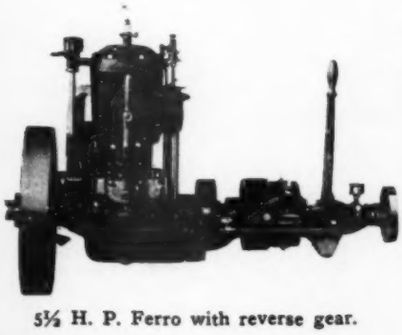
The equipment is to be very complete, with a power tender and dinghy, and Mahapa II promises to be one of the most comfortable boats ever built. She will make her headquarters at the Lakewood Yacht Club, Rocky River, and will cruise for the most part in the Great Lakes, Georgian Bay and Lake Superior.

The 5 1-2 H. P. Ferro.

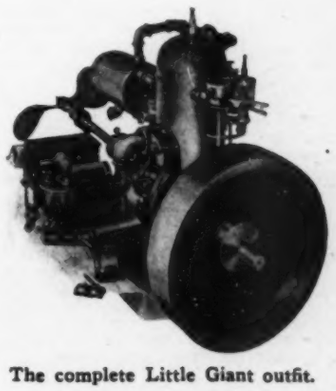
This motor is known as Model F. and is manufactured by the Ferro Machine and Foundry Company, of Cleveland. In the July issue of Motor Boating a small illustration of this engine was shown, but through a mistake the illustration was made from a photograph of an older model. An important mechanical feature of the later models is the removable cylinder head, which can be seen in the photograph. These motors have a bore and stroke of 4½ inches and are intended to turn the propeller from 600 to 800 revolutions per minute. A reverse gear is furnished with the equipment if desired and either make-and-break or jump spark may be used.

The Single Cylinder Little Giant.

This motor is manufactured by the Strelinger Marine Engine Company, of Detroit, and is of the three-port, two cycle type, requiring no check valve in the gas intake. As may be seen from the illustration, the motor is a very accessible one and the entire engine may be inspected by removing the bolts at the center line of the shaft. Any wear upon the bearings may be easily taken up by this means. By a special method of construction the exhaust gases pass out of the cylinder before the fresh charge is drawn into the firing chamber, an economical feature which insures a clean cylinder. The piston is provided with three spring rings at the top and one at the bottom and in its passage the piston uncovers the fixed ports. The piston is made with a peculiar dome shape which secures a high amount of compression. A force feed lubricating system is provided and the motor is said to be very economical. It develops from three to five horsepower, according to speed.



5½ H. P. Ferro with reverse gear.



The complete Little Giant outfit.

Yard and Shop

A portion of the plant of the Bath Marine Construction Company, at Bath, Maine.

The Electric Goods Manufacturing Company, of Canton, Mass., manufacturers of Perfex Ignition apparatus, have prepared red and white pennants or flags which they will send free on request to anyone wishing to use them for marking hidden shoals or reefs. The flags are made especially for the purpose and will flutter in a slight breeze.

La Truda, owned by Commodore Harry T. Vars, of the Motor Boat Club, of Buffalo, and equipped with a 100 h.p., 8 cylinder Sterling engine, won the free-for-all races held upon the Niagara River July 4th. She is thought to be even faster than last year when she did better than 32 miles per hour.

The Anderson engine, made by the Anderson Engine Company, of Shelbyville, Ill., which was described on page 41 of MOTOR BOATING for July, owing to a typographical error was stated as being 2 horsepower instead of 5 horsepower.

The Ferro Machine and Foundry Company, of Cleveland, O., recently gave their office men, factory superintendents and department heads an outing at Avon Beach. Private cars carried the party to the beach where a ball game was played and other athletic events held. 1,200 men are employed in the plant, with about 70 office men and factory heads and every one of the 70 turned out. An elaborate banquet was served in the evening.

Intruder, Frederick K. Burnham, of New York, owner, made her first official appearance in the race at Alexandria Bay on the St. Lawrence on July 4th. Although she was not driven at her best speed she won two races, the time for one over the 16-mile course being 29 min. 5 sec. Intruder is equipped with a 240 h.p. Sterling engine. Mr. Burnham is also owner of Dixie II, winner of the Gold Challenge Cup for the last two years.

The Pierce Motor Company, of Racine, Wis., have called attention to a typographical error which occurred upon page 37 of the July issue of MOTOR BOATING. The price of the 18-foot boat of the Atlantic type is $290 instead of $390 as was stated.

Lloyd's Register of American Yachts, published by Lloyd's Register of Shipping, 17 Battery Place, New York City, is out for 1910 and contains a list of the yachts, yacht clubs, and yachtsmen of the United States, the Dominion of Canada and the West Indies. It is a handsomely bound book of 456 pages and includes much valuable information.

The 1911 National Motor Boat & Engine Show will be held at Boston from January 28th to February 4th at the Mechanics Building. This is the only show sanctioned and approved by the New England Engine & Boat Association. The show will be managed as last year by Chester I. Campbell, and all communications should be addressed to him at 5 Park Square, Boston.

The Bridgeport Motor Co., Inc., of Bridgeport, Conn., give some interesting facts regarding the efficiency of the gasoline engine at the time, a few weeks ago, when the two-masted schooner Eddy Minot was run down and sunk in the East River. The next morning the schooner was raised by the Merritt-Chapman Company, and while repairs were being made the motor was cleaned. As soon as the boat was put overboard again the motor was started and did its work just as well as though it had not taken its involuntary bath.

Grayling, supposed to be the fastest cruising motor boat in the world of her length and beam, left Detroit for a 1,000-mile trip to Shelter Island at the eastern end of Long Island Sound to be delivered to her owner, Mr. Artemus Ward, of the Sapolio Company. Grayling is 66 feet long, 11½ feet beam and maintains a cruising speed of over 15 miles per hour although she has covered an 18-mile course at Detroit in 58 minutes. She is equipped with three 40 h.p., 4 cylinder Gray motors.

Ohio Valley Exposition, Cincinnati, O. Several of the largest motor boat manufacturing concerns of the middle states have applied for space at the Ohio Valley Exposition at Cincinnati from August 29th to September 24th. The motor boat exhibit will have a large floor space and it is the expection of the management to erect a series of slips or wharfs along the canal bank, so that demonstrations can be made upon the canal during the exposition.

The Ferro Machine & Foundry Co., of Cleveland, O., have made a change in their eastern sales organization which went into effect July 1. J. A. Day, who has been in charge of the New York office has been called back to headquarters in Cleveland where he will serve in a more important capacity, and the New York agency has been given over to the charge of H. C. Squires' Sons, who have been in the marine supply business for over 40 years. They are located at 44 Cortlandt St., and will carry a complete line of Ferro products.

Tufts College, at Boston, has installed in the mechanical laboratory an 8 h.p. Ferro engine which is assembled and disassembled by the students in making a study of the gas engine.

The R. E. Hardy Company, manufacturers of Sta-Rite spark plugs, have opened a Canadian factory for the manufacture of ignition apparatus at Windsor, Ont.

The Osborn Electric Company, of Detroit, have appointed the J. C. Shadegg Engine Company, of Minneapolis, as northwestern distributors for their products, and the Atlantic Maritime Company, of Boston, as New England distributors.

The Simms Magneto Company, of New York City, has been incorporated with a capital of $1,000,000 for the purpose of manufacturing in this country under patents Simms magnetos, distributors, dual ignitions, sparking plugs, and other electrical ignition apparatus and accessories.

Peoria's Big Motor Boat Meet.

(*Continued from page 9.*)

Monday, July 4th.

Class H, Open Launches, 5 Miles.

No. Boat.	Start.	Finish.	Elapsed.
46—Rana, 1st	2:01.30	2:32.43	31.13
59—Argo, 2d	2:01.30	2:32.47	31.17
66—Jose Vila, 3d	2:01.30	2:37.03	35.33
67—Hindee, 4th	2:01.30	2:37.52	36.22
36—Ivy Girl, 5th	2:01.30	2:41.34	40.04
47—Imp, 6th	2:01.30	2:41.36	40.06

Class D, 33-Foot, 15 Miles.

*6—Beat It, 1st	2:51	3:23.38	32.38
63—Cero II, 2d	2:51	3:26.17	37.17
63—Elbridge V, 3d	2:51	3:33.34	42.34
26—Teaser, 4th	2:51	3:36.09	45.09
1—Pirate II, 5th	2:51	3:36.34	45.34
69—Helen C, 6th	2:51	3:40.	49.00

*Beat It disqualified for cutting course.

Class A, Cabin Cruisers, 20 Miles.

32—Sparks II	4:00	5:41.35	1:41.35
2—Allamakee	4:00	5:42.50	1:42.50
24—Duro IV	4:00	6:01.30	2:01.30

Class A, 20-Foot, 10 Miles.

29—Comet, 1st	5:50.50	6:16.33	25.43
49—Scamp III, 2d	5:50.50	6:17.16	26.26
33—Joker, 3d	5:50.50	6:21.29	30.39
19—Pronto, 4th	5:50.50	6:22.25	31.35
31—Judgey, 5th	5:50.50	6:22.52	32.02
41—Wux, 6th	5:50.50	6:31.20	40.30

Tuesday, July 5th.

Class C, 26-Foot, Ten Miles.

49—Scamp III, 1st	2:18.40	2:42.11	23.31
53—Elbridge V, 2d	2:18.40	2:43.39	24.59
13—Missouri II, 3d	2:18.40	2:45.19	26.39
51—Vim, 4th	2:18.40	2:45.32	26.52

Championship, 20 Miles, Free-For-All.

27—Red Top II, 1st	3:12.30	3:56.10½	43.40½
60—Hoosier Boy, 2d	3:12.30	3:59.46	47.16
29—Comet, 3d	3:12.30	4:00.28	47.58
6—Beat It, 4th	3:12.30	4:04.32	52.02
13—Missouri II, 5th	3:12.30	4:06.12	53.42
18—Oshkosh, 6th	3:12.30	4:08.20	55.50
51—Vim, 7th	3:12.30	4:11.08	58.38

Handicap I. V. Y. C.—15 Miles.

41—Wux, 1st	4:35	5:29.02	54.02
19—Pronto II, 2d	4:58	5:41.53	43.53
1—Pirate II, 3d	5:01	5:44.25	43.25
4—Helen C, 4th	4:58	5:44.50	46.50
56—Pronto, 5th	4:35	5:45.34	1:10.34
55—Mora D, 6th	4:35	5:49.10	1:14.10

Wednesday, July 6th.

Half Cabin Class—20 Miles.

6—Meteor, 1st	2:05.53	3:49.34	1:43.41
1—La Tosca, 2d	2:05.53	4:08.08	2:02.15
8—Alamo, 3d	2:05.53	4:10.04	2:04.51

Handicap Speed Class—30 Miles.

21—Pippin, 1st	2:00	4:25	2:25
1—Pirate, 2d	3:03	4:37.30	1:34.30
41—Wux, 3d	2:42.30	4:51	2:08.30

32-Foot Special—15 Miles.

29—Comet, 1st	5:01	5:36.53	35.53
6—Beat It, 2d	5:01	5:42.21	41.21
13—Missouri II, 3d	5:01	5:42.28	41.28
51—Vim, 4th	5:01	5:44.22	43.22
33—Joker, 5th	5:01	5:46.29	45.29

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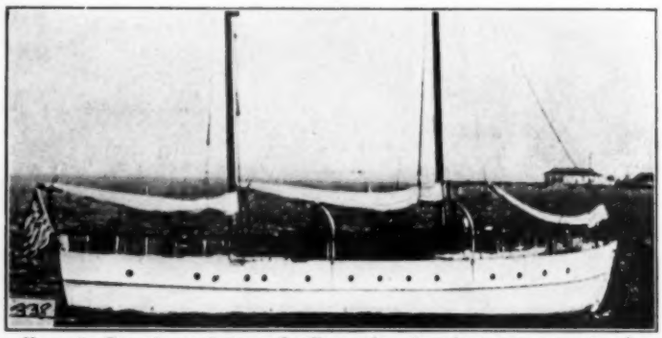

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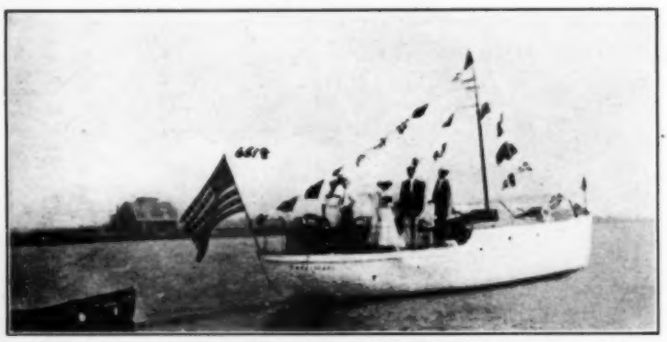

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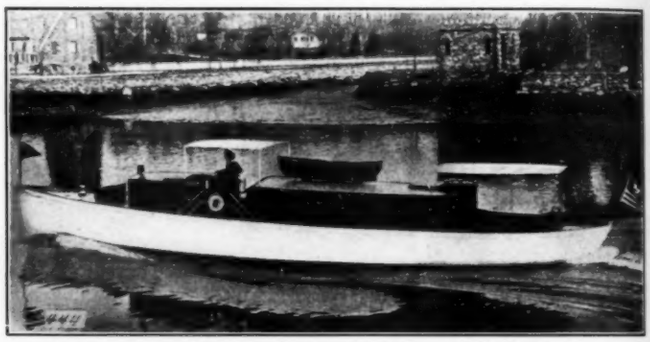

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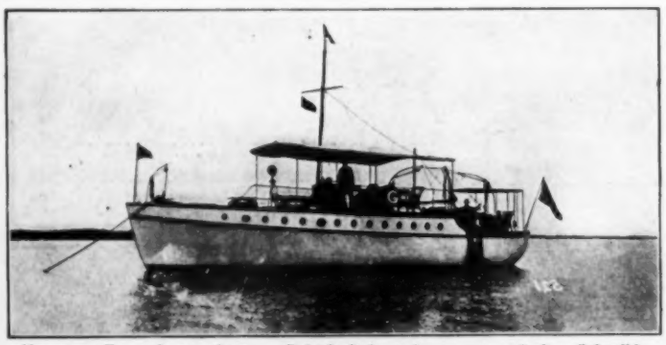

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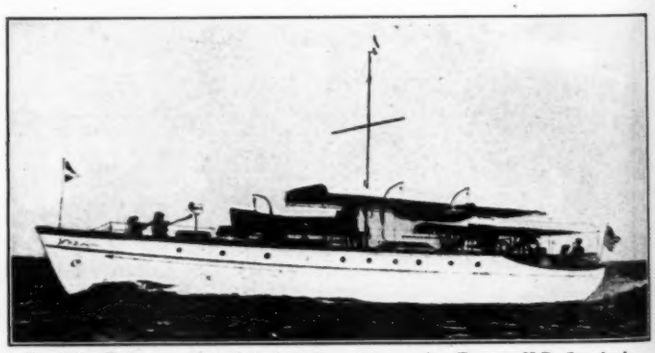

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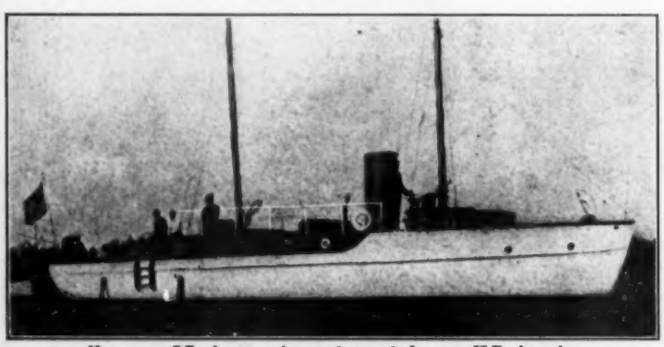

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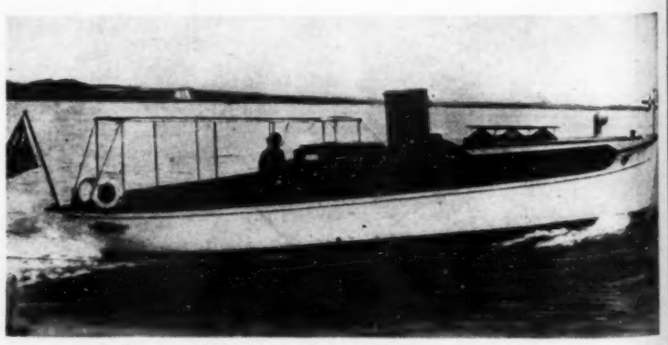

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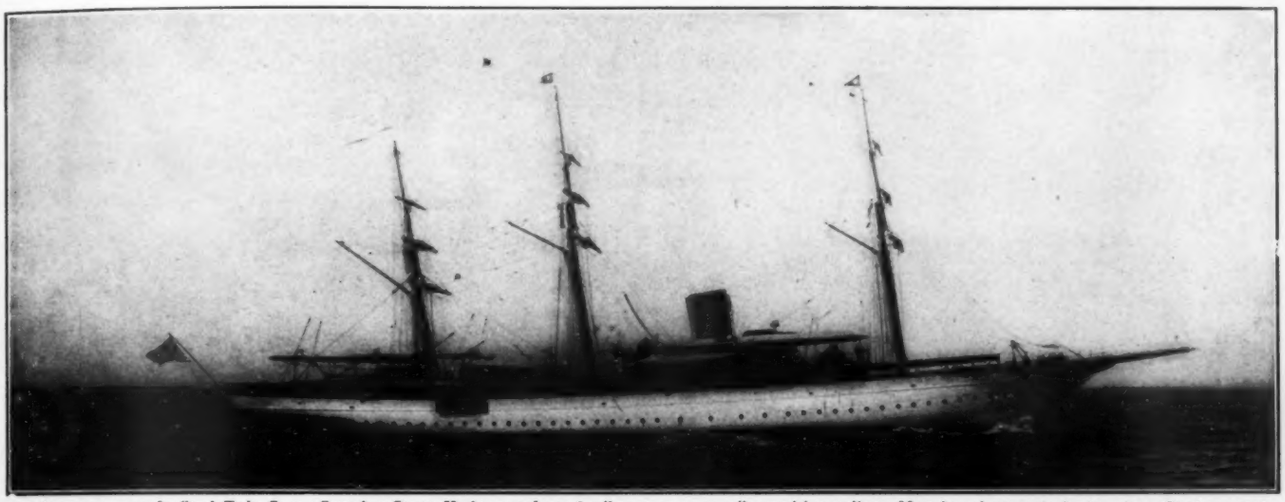

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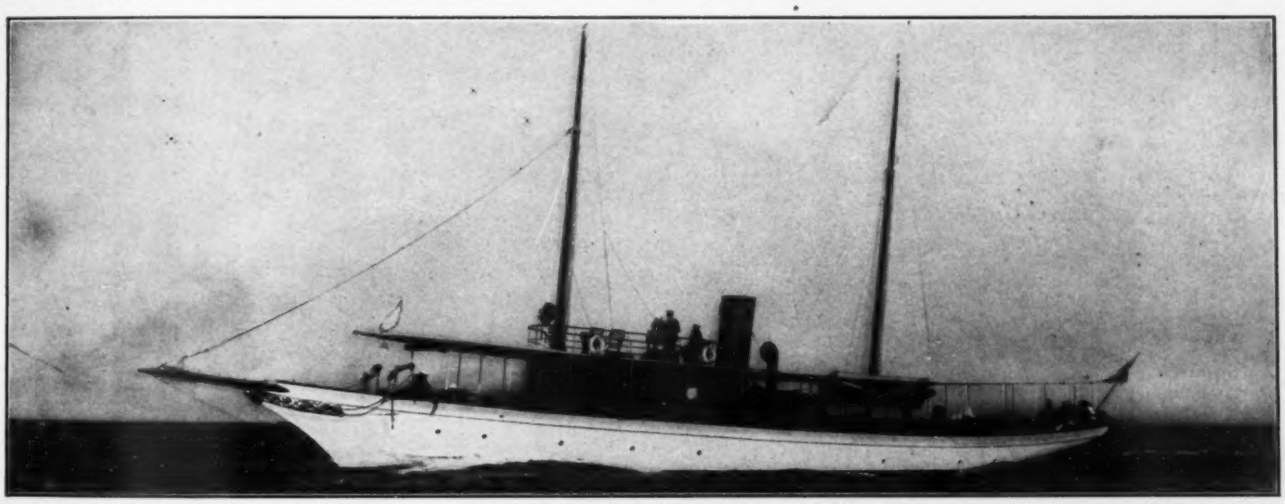
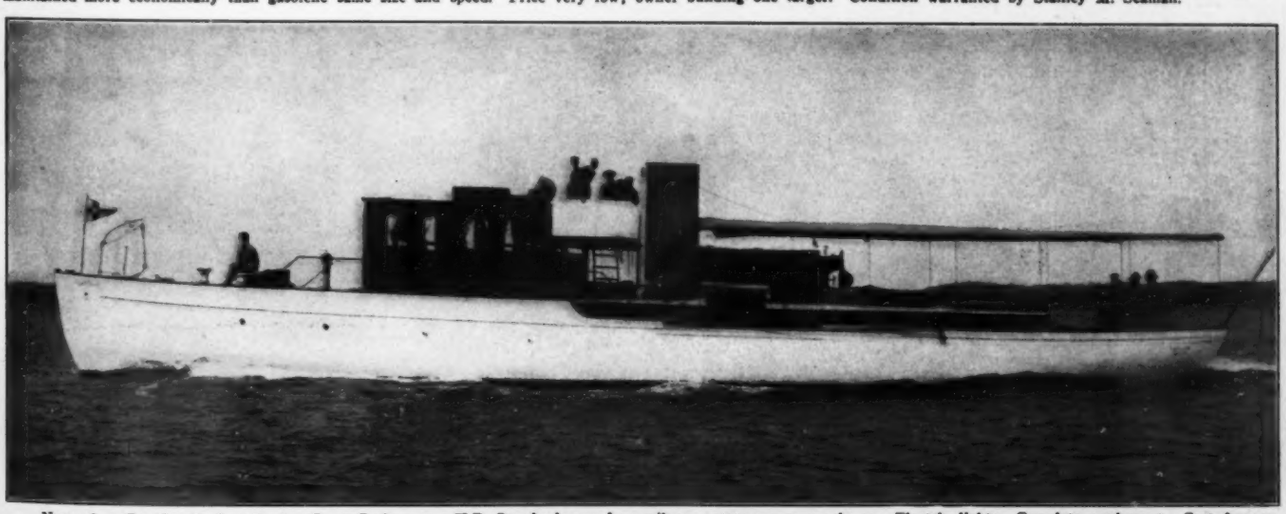


No. 5144.—Wooden Steam Yacht, 117 ft.; built 1907; 4 staterooms; 2 baths; large deck dining saloon; Sullivan triple engine; speed 12 knots; completely equipped; maintained more economically than gasolene same size and speed. Price very low; owner building one larger. Condition warranted by Stanley M. Seaman.



No. 5967.—Gasoline 80 foot Lawley Coast Cruiser; 100 H.P. Standard; speed 13 miles; 2 staterooms; 2 saloons. Electric lights. Complete equipment. Cost $21,000. Bargain. Condition guaranteed by Stanley M. Seaman, 220 Broadway, New York City.

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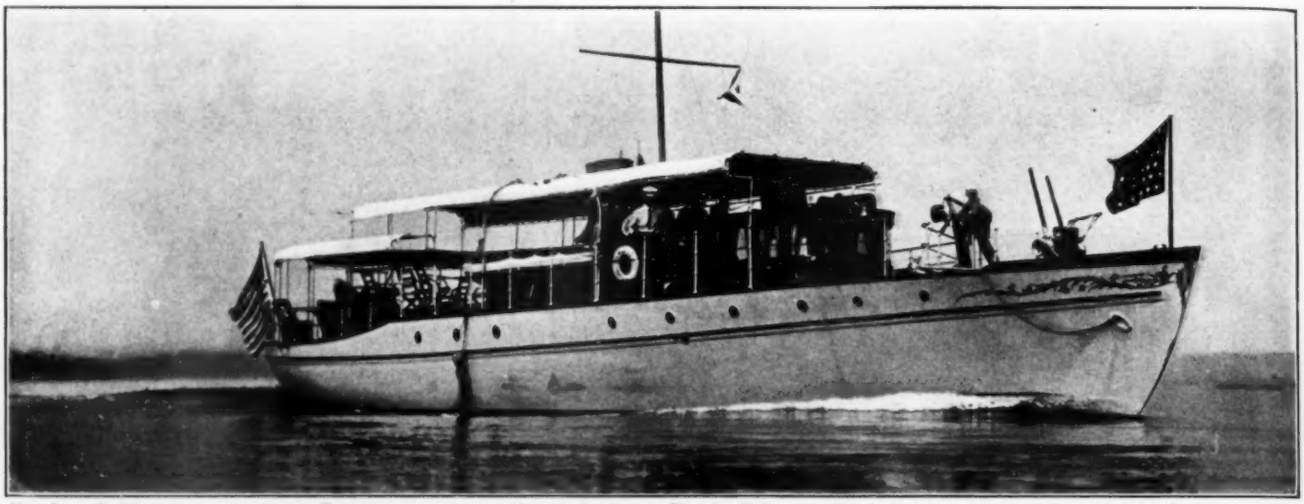

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No. 2583.— Real bargain; 70 ft. motor cruiser; excellent condition; Standard engine; sleep six.
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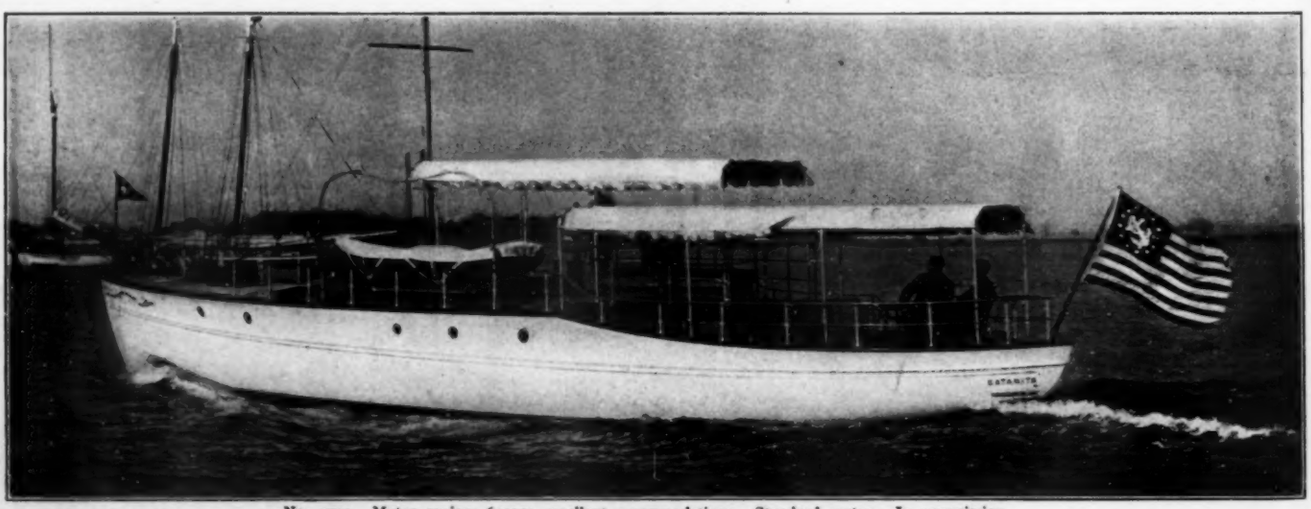

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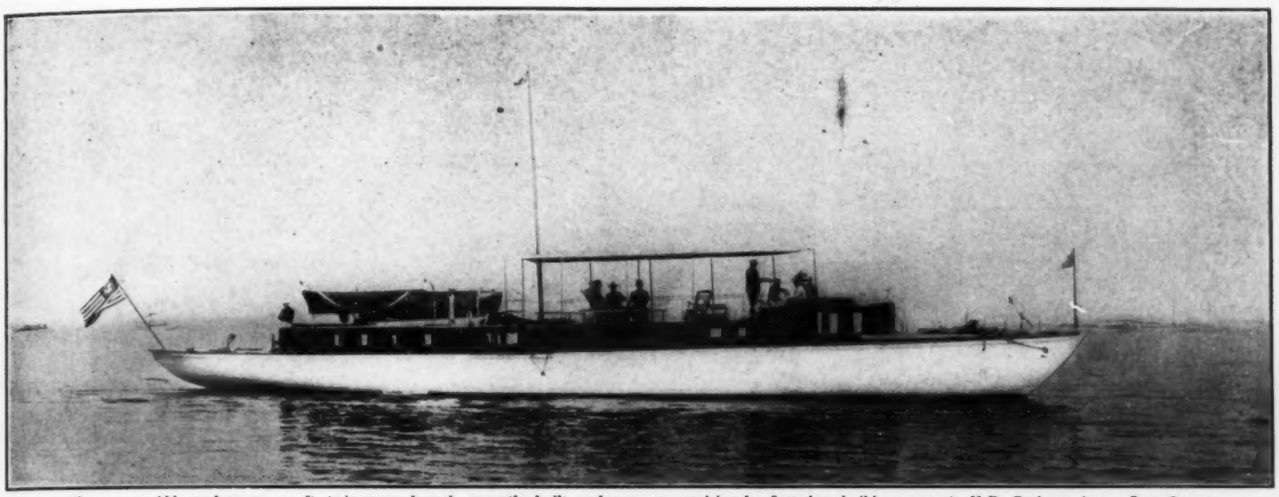

No. 1354.—Able and roomy 93 ft. twin-screw launch, recently built under my supervision by first-class builders; two 60 H.P. Craig engines. Low figure.
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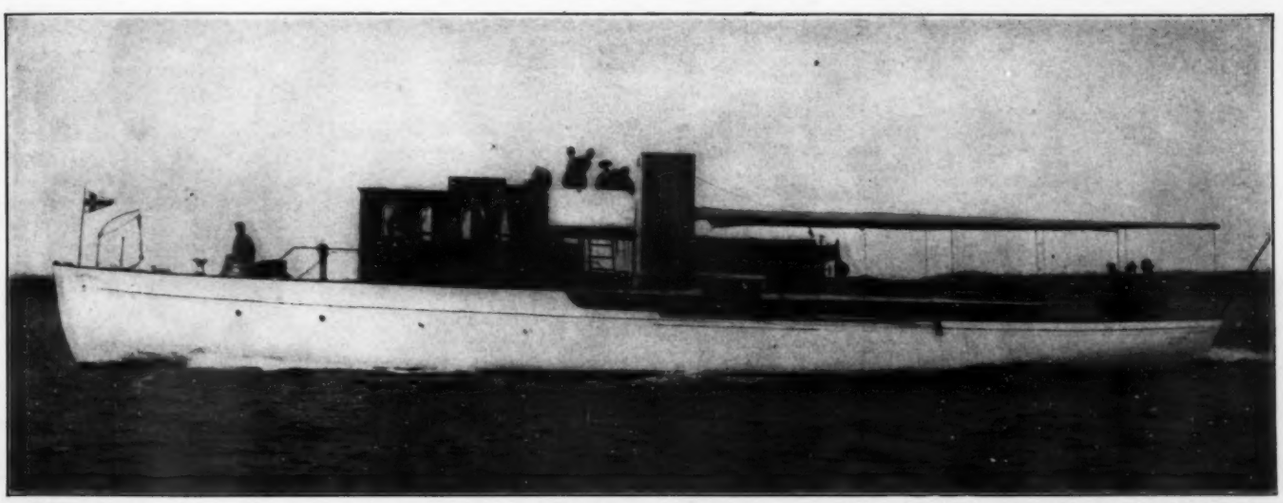

No. 1265.—Lawley built, 80 ft. cruiser, practically new; 100 H. P. Standard motor; cruising speed 12 knots; electric lights; complete equipment; bargain figure.
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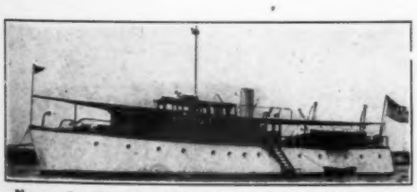

No. 1238.—Exceptionally roomy gasolene yacht, 125x 20x6, three engines and propellers, speed 15 miles. Belongs to an estate.
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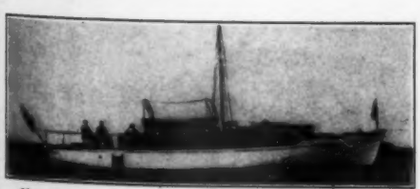

No. 1544.—Modern cruiser, 53 ft. x 11; built 1907; excellent motor.
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No. 1499.—Bargain. Handsome, modern auxiliary schooner, recent build, offered by an estate; 110' over all, 24' beam, 6' 6" draft; 4 staterooms, saloon, breakfast room, bath, etc.; 60 horse power engine; practically in commission; no reasonable offer refused.
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No. 27. 21 ft. x 4 ft. 8 in; 6 H. P. Mercury; speed 11 miles.
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No. 37. Trunk cabin cruiser Playfellow, 36 ft. x 8 ft.; 30 H. P. 4-cycle motor; fully equipped; perfect condition; all mahogany finish. GREAT BARGAIN.
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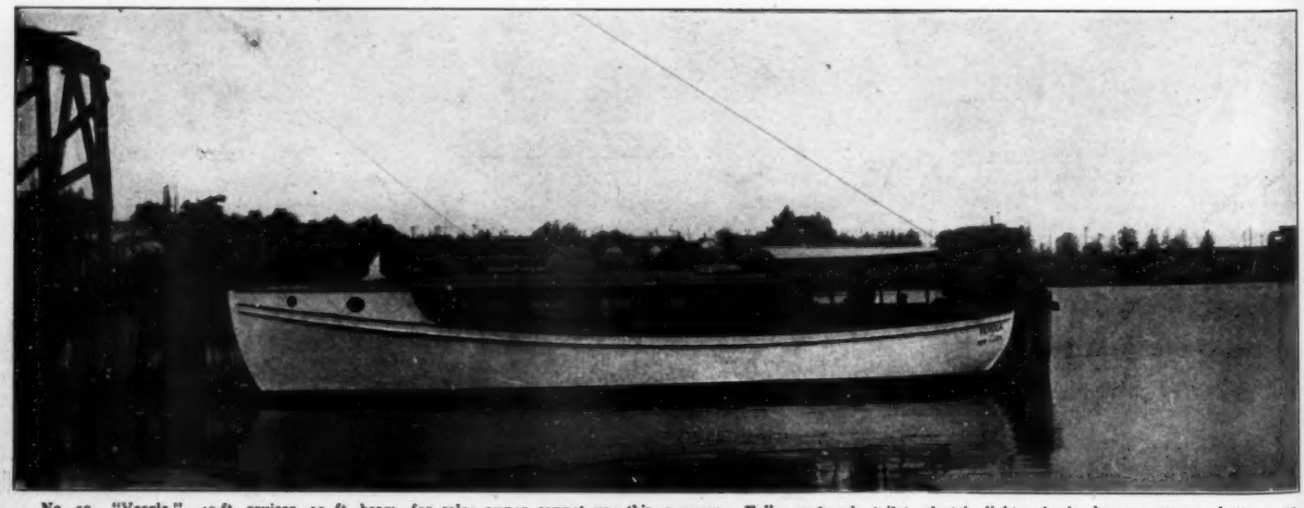

No. 39. "Vergia." 40-ft. cruiser, 10 ft. beam, for sale; owner cannot use this summer. Fully equipped; toilet, electric lights, Apple dynamo, storage battery, 25 H. P., 4-cylinder, 4-cycle motor. Speed ten miles. Can be seen at our works. Must be seen to be appreciated. Interior panelled oak. Sleeps 6.
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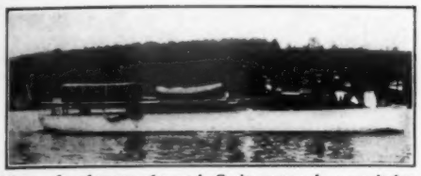

6201. 61x56x10.3x2.6; 4-cyl. Craig motor; in commission.
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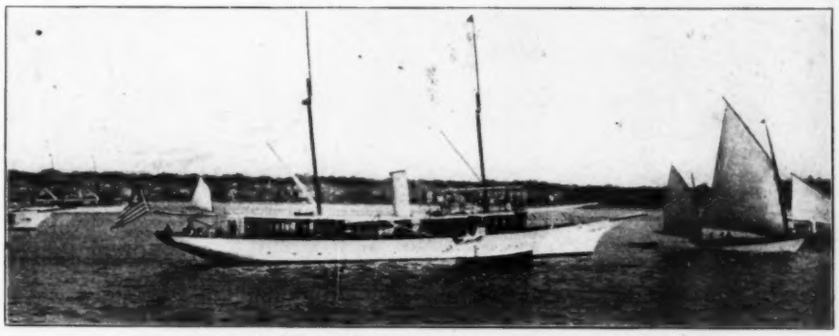

1234. Steam Yacht—in commission. 130 ft. x 17 x 6 ft. Great bargain.
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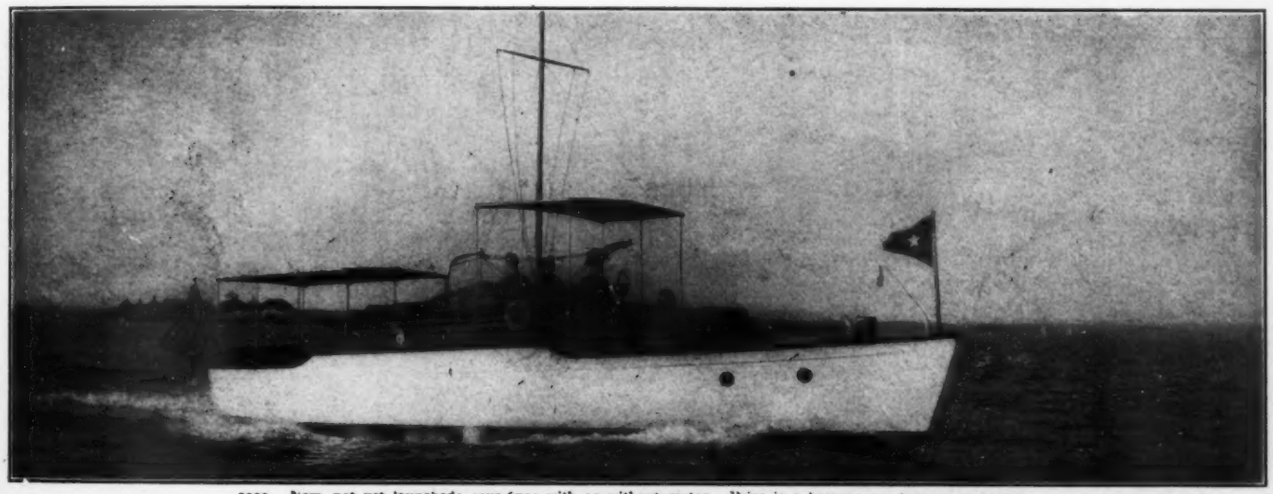

1000. New, not yet launched; 42x9.6x3; with or without motor. Price is a bargain for high-grade boat.
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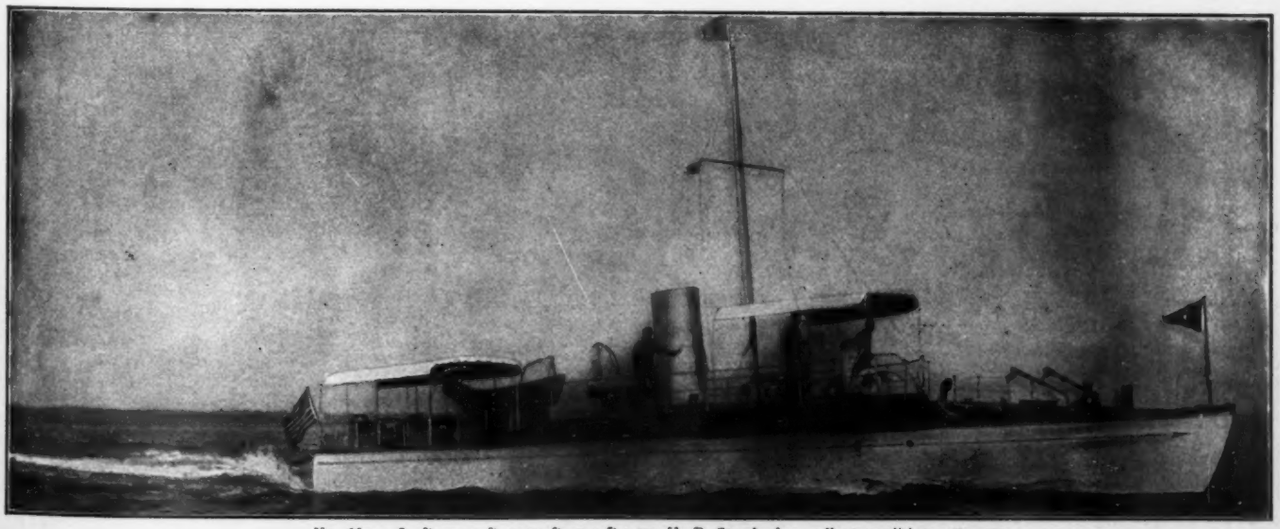

No. 6624.—80 ft. x 72 ft. x 11 ft. x 4 ft.; 300 H. P. Standard; excellent condition. Bargain.
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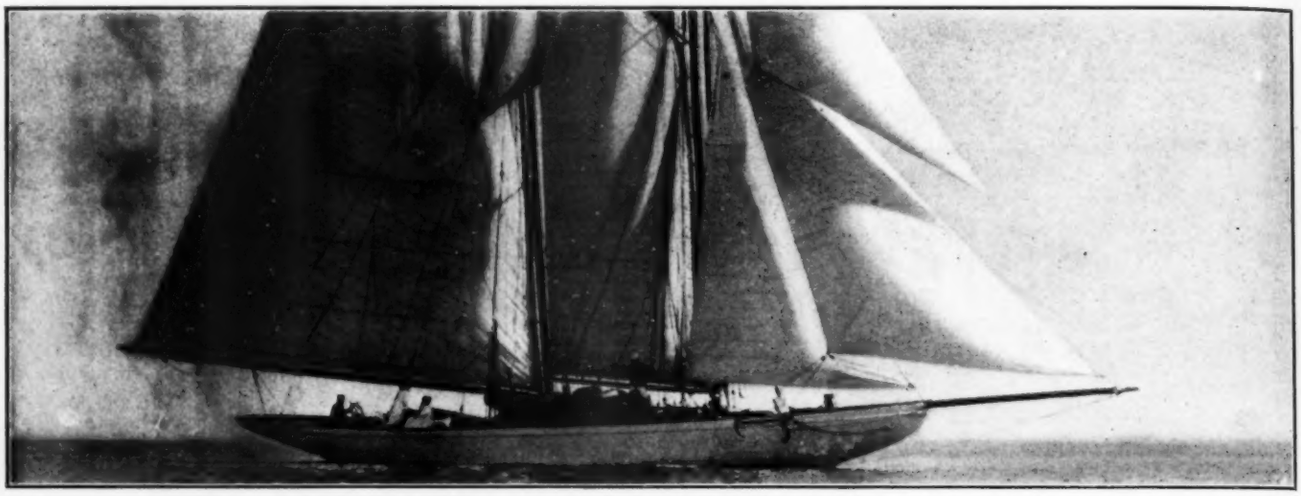

No. 1398.—For sale—64 ft. over all, auxiliary. Price low.
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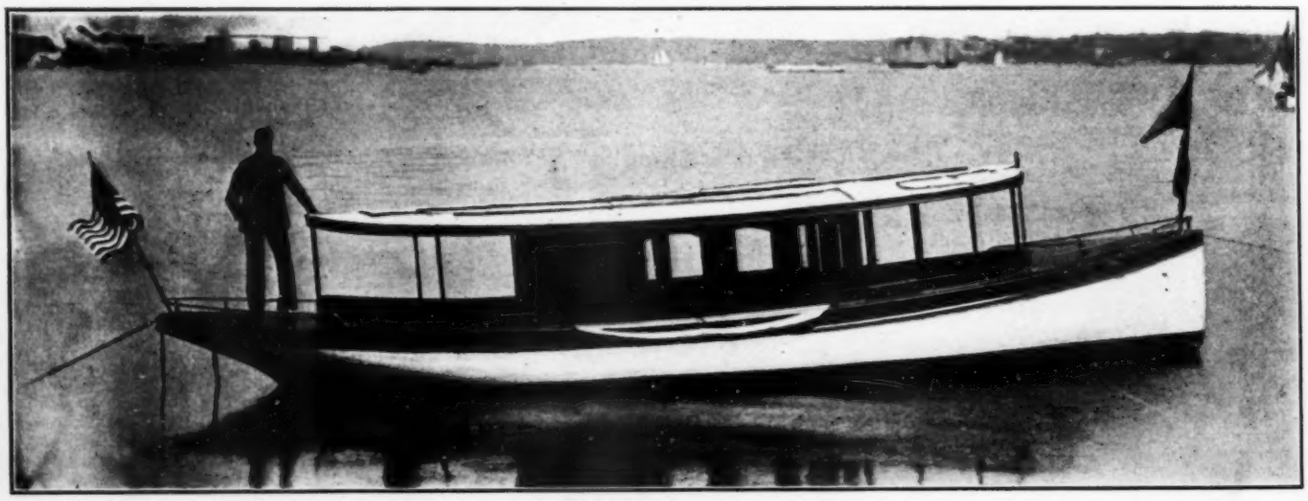

No. 2176.—For sale, cheap—35 ft., 15 horsepower.
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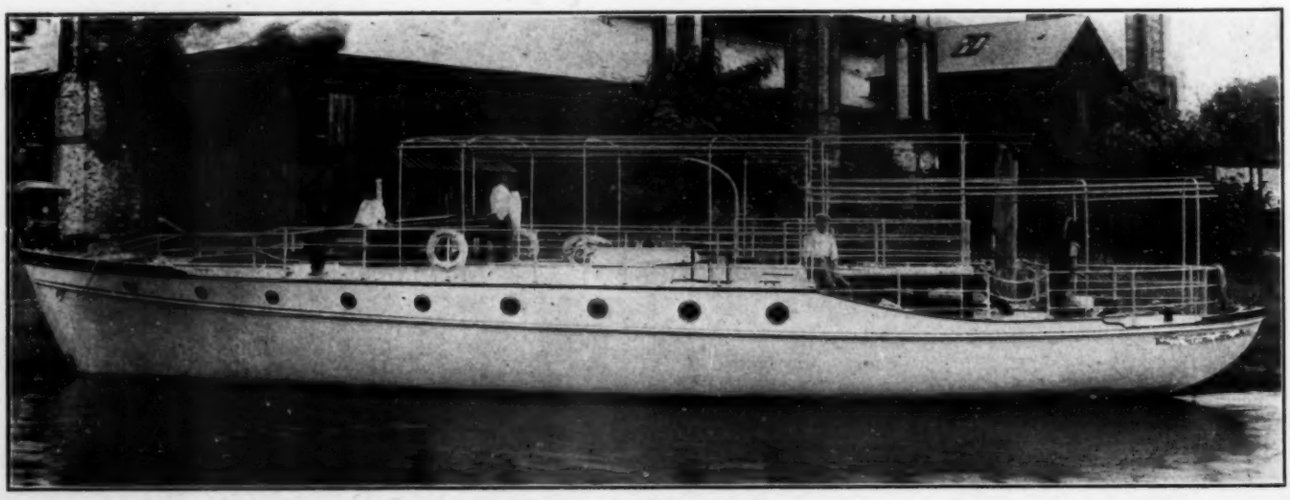

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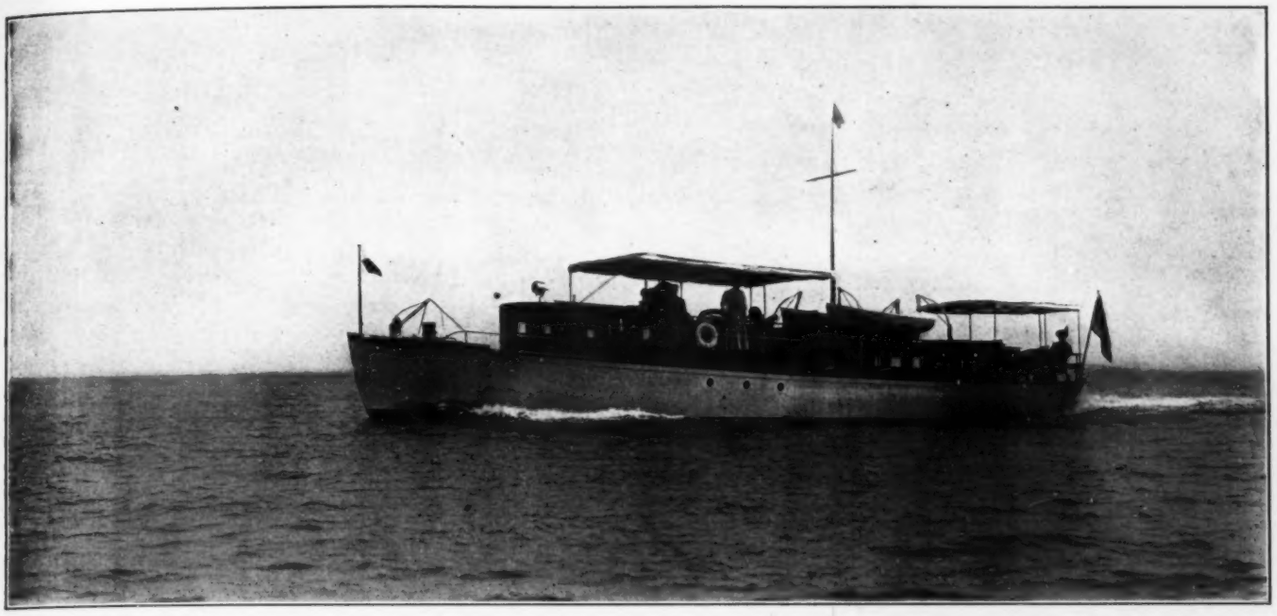

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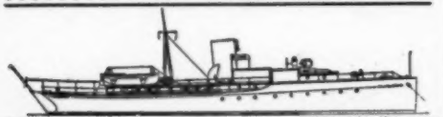

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(*Continued from page 38.*)

strake, staunchions and canopy top frame, seats, etc., are of white oak, stained dark and varnished. The planking is of cypress and the floor and ceiling of the canopy are of pine, the latter being enameled white. The stuffing box is inside of the boat, there being a babbitted stern bearing outside, which is oiled by an automatic grease cup inside of the boat, which keeps the pipe log full of gasoline under pressure. I do not use hard oil, as it is too stiff.

As a sea boat she is excellent and under favorable conditions will do ten miles per hour. She was used all last summer on the Minnesota River and last October I came down to St. Louis in her alone, covering 700 miles, and after the trip the boat and engine were in perfect condition.

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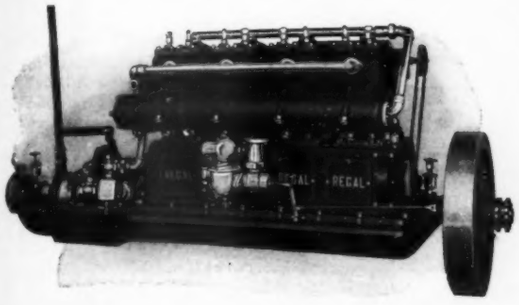

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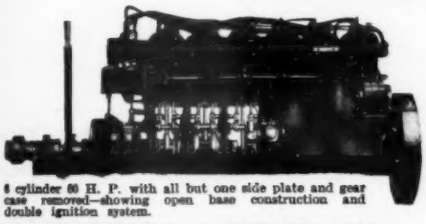

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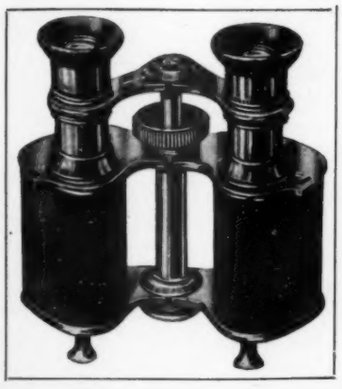

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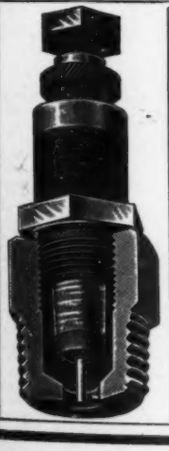

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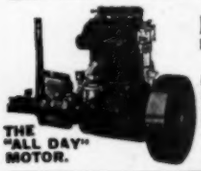
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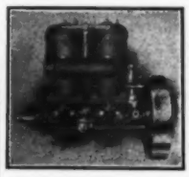

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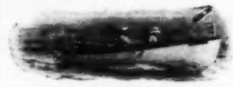

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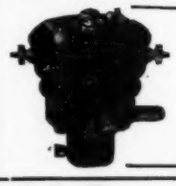

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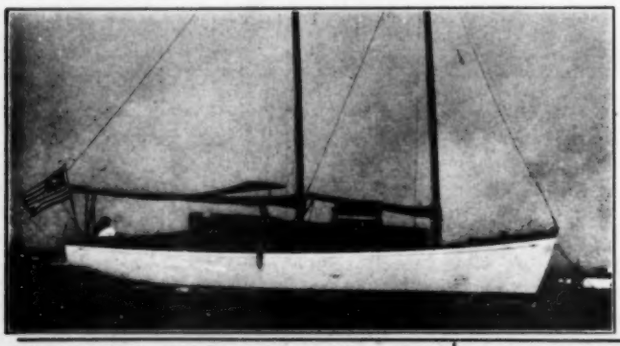

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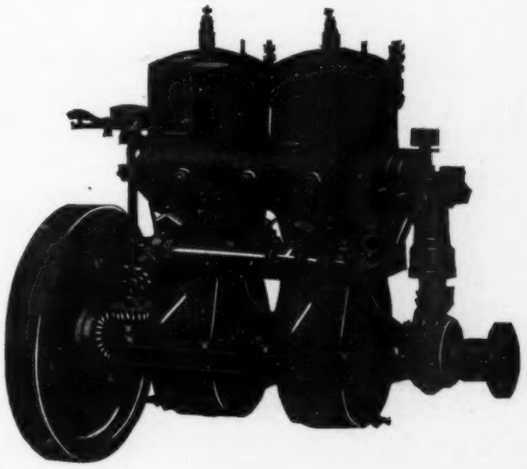
MOTOR BOATING

"Liberty"



Why not buy a "Liberty" 7-8 or 12-14 H. P. Double Cylinder Engine?

Special inducements to Demonstrating Agents.

Write for a catalog and prices.

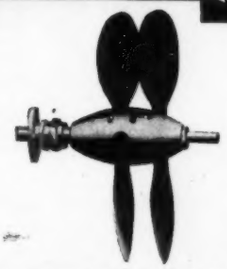
We guarantee every engine Sent Out.

We manufacture single cylinder Engines of 1½ H. P., 2½ H. P., 3½ H. P. and 6½ H. P.

DETROIT AUTO SPECIALTY CO.

909-11 GREENWOOD AVENUE, DETROIT, MICHIGAN

ROPER Safety Propeller



Absolute Mastery of Boat

Perfect Speed Control

The Roper Safety Propeller is the only speed controlling propeller or reversing device for motor boats that gives any speed in either direction, absolutely without engine racing, entirely without throttle or spark adjustment, without change in engine speed, and without altering the speed or direction of revolution of the propeller shaft.

Roper Safety Propeller Control is an Absolute One Lever Control, securing for the motor boat all the flexibility, ease and effectiveness of management of the steam driven boat.

Every motor boat that goes on long cruises, that is sailed through uncharted or unknown waters, that is used for commercial purposes, that is used by sportsmen, needs a Roper Safety Propeller Equipment to secure its fullest safety of operation and its maximum comfort or serviceability.

For use on Motor Boats where Speed Control is desired from a position alongside, forward of or back of the motor the Roper Safety Propeller Bow Control Equipment is the only satisfactory control offered to the motor boatman. It acts exactly similarly to the regular equipment and gives the same security against accident from imperfect speed control.

Write for full Roper Safety Equipment details.

C. F. ROPER & CO.,
Hopedale, Mass.

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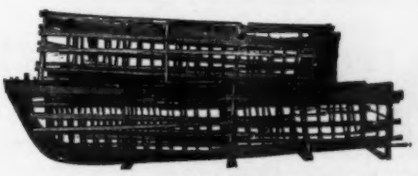
AND THINK FOR A MOMENT

ERECTED FRAMES
SAVE WEEKS OF HARD WORK

If your time and labor are worth anything you should investigate our plan



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Ribs, Sheerstrake, Bilgestringers and forward sections of Garboards permanently fastened in place. Our models are designed by a Naval Architect and boats or frames are built under his supervision. His services and advice are free when building your boat from our frames.

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When Thermometer says "ITS HOT"
Thermos answers—"CERTAINLY NOT"
My Contents are—ICY COLD"
And When Thermometer goes below
Says Thermos Bottle—"TIS NOT SO"
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THERMOS BUILDING, 243-247 WEST 17TH ST. NEW YORK.

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is guaranteed to deliver a hotter spark than any other plug, insuring greater engine efficiency. Price all threads $1.00.

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The most valuable improvement yet devised for use in connection with ignition system. Indispensable to every motor boatman and motorist, beginner or expert. All ignition troubles in magneto, coils or connections readily traced to their source. Spark plugs tested to place with motor running. Makes perfect engine tuning possible. If motor won't run, tells why. Of your dealer, or sent prepaid for $2.00. Terms to dealers. Circulars on request.

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have been tested under the most difficult and trying conditions, and have proven universally satisfactory. Price - - - - - - - **$1.00**

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Is superior in efficiency to any other on the market

WE HAVE THE PROOF

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VALSPAR WON'T TURN WHITE, even when exposed to the direct action of salt or fresh water, rain or fog. It remains unharmed even when immersed continuously for months

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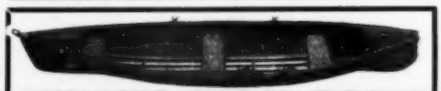

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Now is the time to figure on next year's Cruiser. Write us.
This boat can be supplied "Knock down"

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Six cylinders. Absolutely new.
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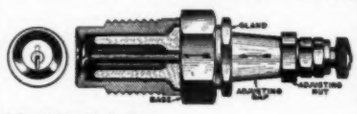

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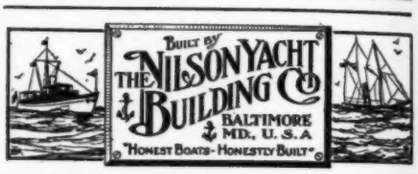

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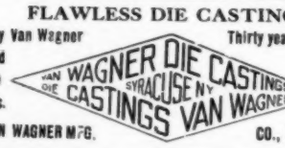

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Brass Frames and Fittings covered with government khaki duck. The best hoods on the market. Send for prices and catalogue
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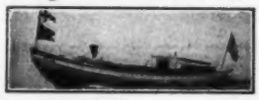

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"Direct-Connected" Induction Coil and Spark Plug On Each Cylinder.

THE POWER PLANT OF "PERFEX" IGNITION

THE MASTER VIBRATOR
"Eliminates ALL My Trouble

Perfex *is*

Jump-Spark Ignition that is PERFECTED!

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"Perfex" Ignition is SIMPLE, EFFICIENT, ECONOMICAL

So *Simple*, that it has no High Tension Wiring!
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So *Efficient*, that it *adds* 10-25% to the POWER of any Engine!
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So *Economical* that it necessitates the use of but VERY LITTLE gasoline to get greatly Increased POWER!
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WAIT! *THAT Little VIBRATOR has a Unique Perfection we want YOU to know about! (Its "Polarity-Reversing Feature"!) —The Simple Operation of Turning This One Vibrator End for End in its box each day reverses the Current and by Re-Depositing the cone (when any has been formed) on the points, Eliminates All Vibrator Trouble!*

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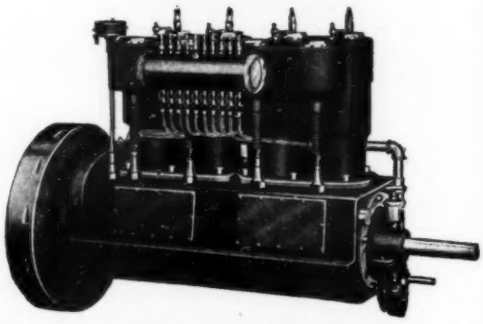
1840 *Marine Accessories* 1910

Our new 500 page 1910 Marine Supply Catalogue is now ready—Larger, more complete and more interesting than ever before. It will contain not only the latest ideas in up-to-date Marine Equipment, but also valuable and interesting matter in reference to the care and handling of Marine Engines and of Sailboats, written by men who are recognized authorities. Let us have your application as early as possible with 18 cents in stamps to cover postage, which will be refunded on first order.

GEO·B·CARPENTER & CO.

200-208 South Water Street, Chicago, Illinois

Motors of Power and Durability



Our 4-cycle marine motors 3 to 90 H. P. made in single to 6 cylinders have the quality and power to take you there and back without a hitch. They are absolutely reliable.

THE PRICE like every detail of these motors IS RIGHT. A card will bring our illustrated catalog and full particulars.

Dingfelder Motor Co.

Foot of Crane Ave. **DETROIT, MICH.**

A New 35x9 Foot Truscott Cruiser

A 35 x 9 foot roomy and seaworthy cruiser, with many features that will appeal to the experienced. Members of our firm have tried out this craft in actual service,—a total of six weeks' cruising. Nothing about it that is experimental.

The 9 foot width insures a roomy boat, therefore a comfortable one. There are two sleeping compartments separated by a toilet room, the latter being accessible from either sleeping compartment without disturbing the occupants of the other. Exceptional locker and wardrobe space is provided as well as a convenient arrangement of galley and folding table.

The cockpit has a wide lockered thwart seat with high back and space for four or five rattan chairs.

The motor installation consists of a four-cylinder four-cycle Truscott 21 H. P. motor, with dual high-tension magneto ignition, mechanical oiler, etc., an ideal power for a cruiser. The control of boat and motor is in the hands of one man. Salt water equipment throughout. Mahogany and white enamel finish.

THE PRICE is exceptionally low, based on the construction of no less than ten exactly alike for 1910 delivery. Better look into this,—it offers a big value.

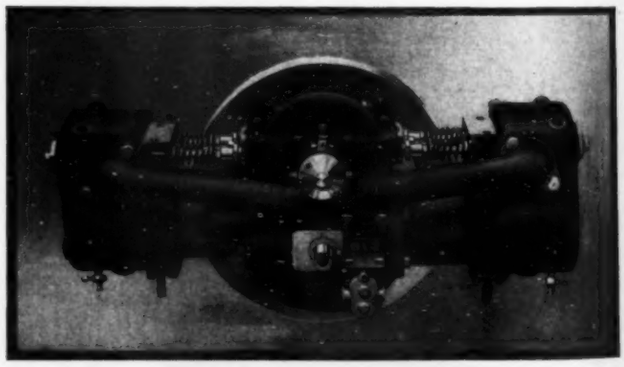
Our general catalogue A illustrates and describes our entire line, except above craft. Ask for special literature if interested in it.

TRUSCOTT BOAT MFG. CO.

Box 8, St. Joseph, Mich.

Branches with stock in New York, Boston and Chicago

BEILFUSS MARINE MOTORS.



Of the two cylinder opposed four cycle type.

The Motor which is surprising the boat owners in every locality wherever introduced, on account of their *compactness* (can be placed under seat if so desired), *economy* of fuel consumption, *non-vibrating* qualities, and their perfect *reliability*. When supplied with a good spark and plenty of gasoline they will run until stopped.

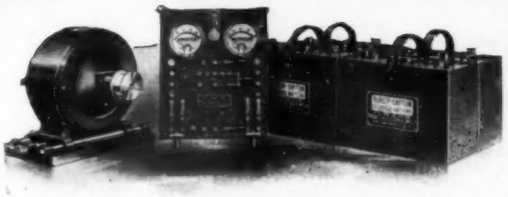
The owners of Beilfuss Motors are our best advertising medium. Why? Because they cannot say too much in their praise.

Write for circulars describing our 1910 style motors.

Thousands of unsolicited testimonials on file to prove the above claims.

BEILFUSS MOTOR CO.,

704 Saginaw St., E. **Lansing, Mich.**



More Light—Better Light Cheaper Light

There is a lot of satisfaction in having your motor boat equipped with an efficient lighting system.

It increases the value of your boat and at the same time gives you many evenings of pleasure that you could not otherwise have.

You know there isn't much satisfaction in going out at night with dim, flickering, unsteady lights that are sure to blow out just at the moment when you need light most.

With the Dayton Launch Lighting outfit on your boat you can have More Light than you ever had the pleasure of enjoying before. You can have a Searchlight to pick out your course; Bow and Riding light that *will* not go out, no matter how hard the wind blows; Cabin lights that flood the interior of your boat with brilliant, steady, white light.

Better Light for the simple reason that electricity *always* gives you a clearer, steadier and more dependable light than anything else.

No more smoky, foul-smelling, unreliable as well as *dangerous* oil lamps are necessary.

Cheaper light because after the first cost of the outfit, the current used for lighting costs you practically nothing.

Dayton Launch Lighting Outfits

How the Dayton Outfit Works

The current is generated by our Dayton Dynamo, a compact, dust, oil and water-proof enclosed dynamo, that runs by contact with your engine.

Current thus generated is accumulated in our Hubler-Dayton Storage Battery; the best storage battery ever devised for marine use, and from the battery it is drawn by the lamps as required.

This double source of current insures against accident. You always have current whether the engine or dynamo is running or standing still.

The switchboard gives you complete control of the system. With it you can light any or all lights as desired, cut out storage battery or dynamo as you wish; and a meter gives the amount of current on hand and the rate at which it is being generated and used.

We build Dayton Launch Lighting Systems in three sizes, to fit the smallest or largest motor boat.

Free Ignition System

The beauty of the Dayton Launch Lighting System is that it gives you a perfect Ignition System without cost.

The current that is generated by this outfit can be used for igniting the engine and insures a constant supply of steady current of even voltage for this purpose.

We also make the famous Apple Ignition Dynamo, the most reliable ignition device known—also the well-known Hubler-Dayton Storage battery and every article necessary to properly ignite a gas engine.

Our experience is at your disposal. Write us to-day for our Launch Light outfit or any of our ignition specialties.

The Dayton Electrical Mfg. Co.

Largest Manufacturers of Ignition and Lighting Apparatus Exclusively in the World.

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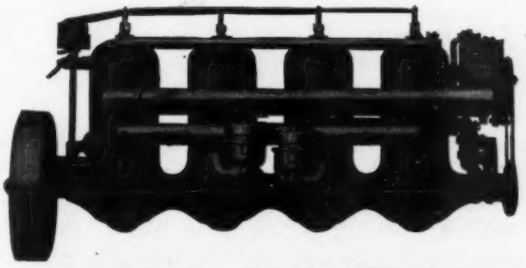

The new Extreme High Speed Vim Motor

Bore and stroke—4 x 4 inches
2 cylinder—12-15 H. P.
3 cylinder—19-23 H. P.
4 cylinder—26-31 H. P.

Bore and stroke—5 x 5 inches
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VIM MOTOR

The most perfect two cycle motor made

Learn the facts about the Vim.

The earlier you do that, the earlier you will become a Vim convert and a Vim user.

The plain truth about this wonderful engine is overwhelming in its convincing force.

It needs no embellishment; and is presented in straightforward manner in the Vim book.

This is a little volume which every investigating boat owner should have.

It contains the details about the marvelous and marvelously simple improvement which places the Vim far in advance of present day gas engine construction and principle:—

A system of double ports that admits the gas with greater rapidity and uniformity, thus wiping out the two cycle engine's one fault when run at high speed.

The result:—greater power than any other engine of the same size can produce; and we make no exception of the four cycle.

You ought to have the Vim book not only for the information it contains about the new Extreme High Speed Vim, but because it describes the most perfect two cycle motors made in heavy duty and speed types.

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We Guarantee to Increase Speed of Any Boat

FOR years Mr. Bryant has been successful in designing propellers and motor boat accessories. He is today one of the best known marine equipment designers in the country. His new wheels have made him famous; his work is looked upon as final.

For many years Mr. Bryant has been experimenting with a new Propeller. He wanted a Propeller that would give the utmost efficiency—reduce the slip—and greatly increase the speed.

After many different designs and private experiments, Mr. Bryant's experiments have taken concrete form in the Frontier Propeller.

Frontier Propellers have been Severely Tested —Proven Superior

Frontier Propellers have been severely tested on all kinds of motor boats and launches, and have proven superior.

Motor boat enthusiasts who have tried all kinds of propellers in search of increased speed, have commented upon the high efficiency of the **Frontier.**

They have found that the **Frontier** increases speed from **1 to 3 miles per hour.** Such an increase is unheard of with any other propeller.

The **Frontier** is true pitch 1-4 the length of blade. It is differential at the hub and thus **overcomes all agitation** at that point.

The peculiar design of the **Frontier** gives a shearing cut from Hub to Periphery. This allows the wheel to work the full length of blade.

It discharges the water in a tapered volume aft, thus affording all the efficiency, less a very small percentage of slip.

Such results cannot be accomplished by any design other than that of the **Frontier.**

Made from Special Metal—"Strong as Steel"

The **Frontier Propeller** is manufactured from a special metal perfectly adapted to the purpose for which it is designed. This metal is "strong as steel"—will hold its shape indefinitely.

The **Frontier Propeller** is giving such satisfactory results all over the country that we guarantee to increase the speed of your boat; if it fails to do so, your money will be refunded on return of the wheel.

Our Guarantee

Give us the exact information asked for below. It must be correct—not guess-work. Our figures are based on the information you give us—not on theory. Unless the information is correct and every question carefully answered you can easily see how impossible it is for us to give our positive guarantee.

Upon receipt of this information we will recommend the Frontier Propeller of the proper size and pitch to increase the speed of your boats as stated.

If the Frontier Propeller fails to increase the speed of your boat from 1 to 3 miles an hour, after a fair trial, your money will be refunded on return of the wheel to our factory.

Dimensions of Propeller recommended depend entirely upon the information you give us. We treat your case individually and we know the Frontier will do the work if given a fair trial.

Fill in the chart now and mail it to us and we'll tell you about the cost. When you realize what this extra speed means to you, you will mail the chart at once.

CUT OUT AND MAIL

Answer These Questions and We'll Guarantee to Increase Your Boat's Speed

Name: .....
Address: .....
Length—over all: .....
Length—water line: .....
Beam: .....
Draft: .....
Is boat heavy or light? .....
Shape of bow, full or sharp: .....
Shape of stern: .....
Indicated H. P. of engine: .....
At what speed do you wish engine to run:—R.P.M. .....

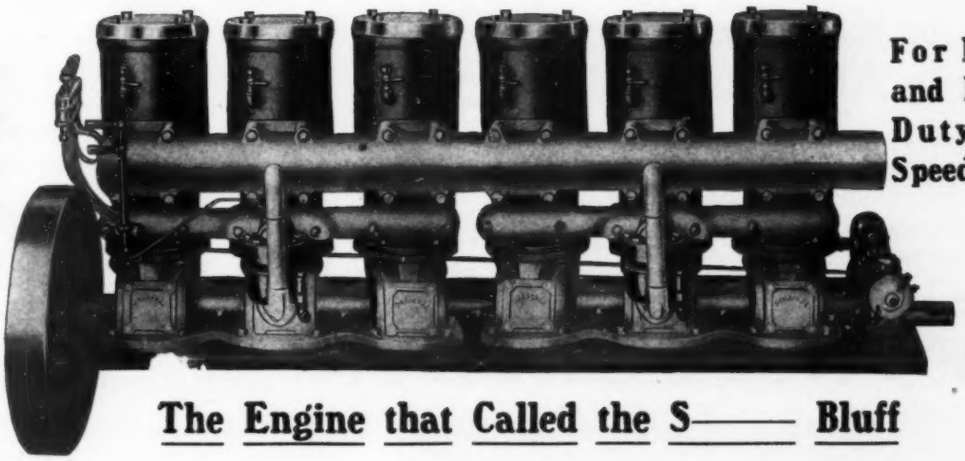
How many cylinders? .....
Two or four cycle: .....
Bore of engine: .....
Stroke: .....
Make of engine: .....
Engine speed with present propeller R.P.M. .....
Size wheel now used:—
Dia. .....Pitch: .....
Make of wheel: .....
Number of blades: .....

Size of shaft: .....
Length of hub: .....
Taper or straight bore: .....
If taper give small and large end of bore: .....
If straight, do you want set screw: .....
Size of key seat: .....
How large a wheel can you swing allowing about one inch for clearance: .....
Right or left hand: .....
Speed of boat with present wheel: .....

FRONTIER ENGINEERING CO., 820-840 Fort Street W. DETROIT, MICH.

SYRACUSE

4 to 120 Horse Power



For Light and Heavy Duty and Speed Boats

The Engine that Called the S—— Bluff

The Great Middle Price High Grade Marine Motors

Our Patented Combination Water-Jacketed Condensing Exhaust

1. Gives the carburetor hot dry air to produce a better mixture.
2. Cools the firing chamber and prevents pockets of steam.
3. Brings cold water in direct contact with the exhaust.
4. Causes quick condensation of gases and thereby prevents backfire.
5. Insures complete and positive scavaging of the firing chamber before the inrush of new gases.

We Do Not Use Aluminum Cylinders

Our Speed Engines are built entirely of aluminum except the cylinders and moving parts. Any reliable authority will tell you that aluminum cylinders are not practical.

On page 39 of The Motor Boat, June 25, R. W. Crowley, in his article, "The Challenger," descriptive of the English challenger, Maple Leaf III, says in part: "It has not been forgotten that sea water has a disintegrating action on aluminum, and a 20-gallon fresh water tank is, therefore, carried under the floor boards forward." Is not this evidence enough to satisfy you that aluminum cylinders are not the kind to have in your engine?

Ask the Man who Runs one

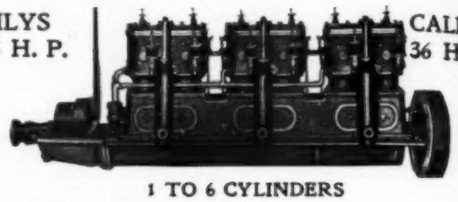
Live Agents Wanted. **Write for Free Catalog**

Syracuse Gas Engine Co., 1803 Park St., Syracuse, N.Y.

ENGINES

HALL ENGINES

ILYS 25 H. P.



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First to Havana
First to Key West
First to Atlantic City

5600 miles at full speed in rough weather, the Gulf Stream and the tropics, under all conditions of climate and elements.

Winning Four [4] Cups Out of Five [5].

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Special Speed CANOE or Racing Yacht Tender

This is a specialty with us and it is one of the most popular and satisfactory crafts ever produced. Designed and built especially for us by the leading canoe builders of America. Constructed on the most approved speed lines and very staunch. Mahogany trimmed, making it a very handsome boat; specially designed for our famous Model "K" Motor. Length, 20 feet; beam 3½ feet; equipped with 1, 2, 3 or 4-cylinder motor, or 2-cylinder motor and twin screws. **Price $300.**

Send for catalog showing **Our Indian Model Canoe,** a gem in beauty and speed. Lengths from 16 to 20 feet. Equipped with Waterman Special Canoe Motors. Greatest ever.

No matter what sort of a Marine (gasoline) motor you want, you will be on the safe side when you buy a "Waterman." **All Waterman Marine Motors are equipped with Schebler Carburetors.**

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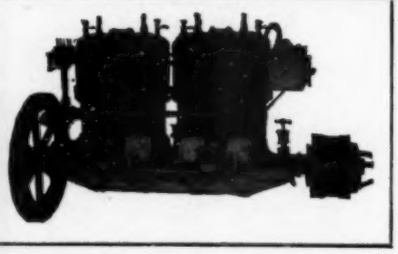

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Water-Cooled Exhaust and Salt Water Fittings

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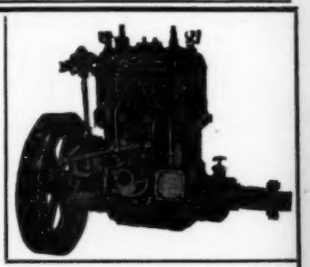

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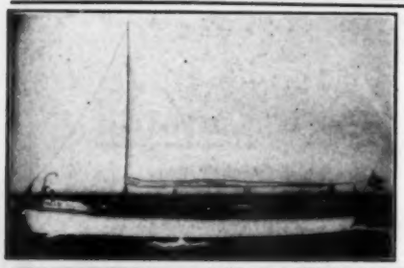

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Fuels—Kerosene, Gasolene, Alcohol, Distillate.

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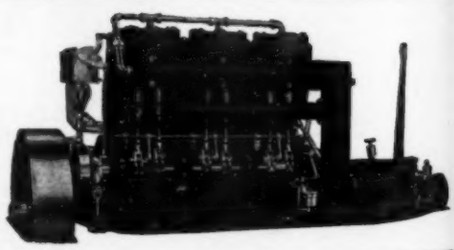

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The Famous Michigan Speed Wheels are used on the majority of speed boats to-day. They are the fastest propeller wheels ever designed, and will increase the speed of your boat over any other wheel. They are made of the best quality of bronze, highly polished and balanced; will not break, but last a lifetime. We have a large selection of designs, suitable for all classes of boats. Prices ranging from one dollar upwards.

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Don't order until you have sent for our large two-colored catalog, which is full of valuable information. Sent free.

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ANY TYPE OF MOTOR BOAT YOU WANT

"VIPER" AT 18 MILES

What kind of a motor boat do you want? Bow big? What are your requirements?

You have merely to tell us roughly what you want and we will send you plans, specifications and estimate of cost without any obligation on you whatever.

Here are a few sample prices on the famous "VIPER," and they're lower than you expected:

Boat complete with 8 H. P., dbl. cyl. Ferro engine, speed 14 miles	$360.00
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It explains in detail how we have achieved this triumph in marine engineering.

RALACO
THE SILENT SIMPLIFIED ENGINE

2 Cylinders
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Also 2-Cycle Engines
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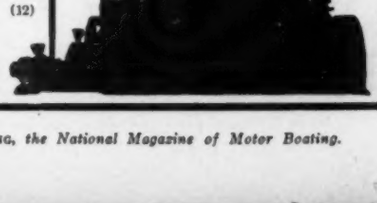
It is impossible, in this limited space, to fully explain the tremendous advantages of the RALACO. Send for the book, which tells the whole story. The best marine engine in America is none too good for your boat.



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THE OAKLAND 20-32

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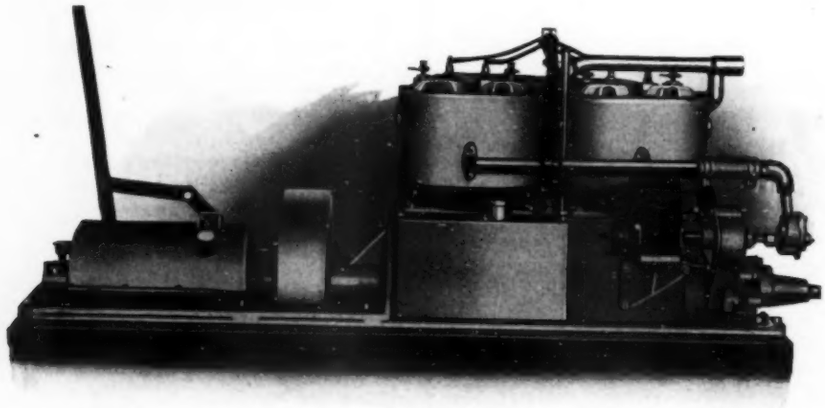

Designed by Alanson P. Brush, designer of Cadillac, Oakland, Brush Runabout, and other successful Automobiles. Strictly first-class in Materials and Workmanship throughout. Extra large bearings, comparatively light weight (800 lbs).

The Strongest Pulling Engine of its inches in the World

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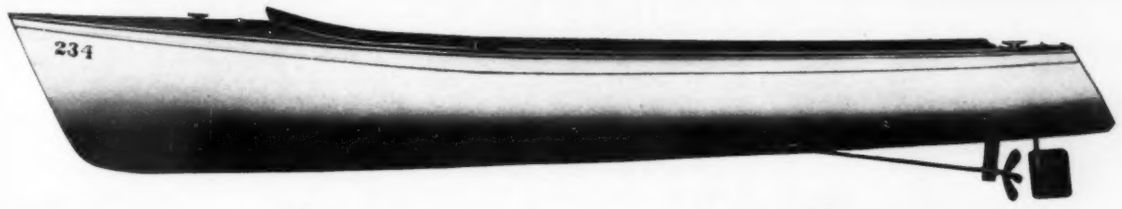

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shows you take no risk in building a boat by the Brooks System

OUR guarantee of satisfaction protects you—if you are not perfectly satisfied with everything, you can have your money returned to you at once.

There is no guess work about the plans and knock down frames being just what you want.

You can have every confidence in them just as we have—and we have been sending them out for 10 years to 83,000 men and boys who have successfully built boats.

The saving you make in this way is enormous. The knock down frame, of the boat above, consisting of keel, stem, stem knee, transom, transom knee, transom reinforcing, shaft log, engine bed timbers, clamps, deck beams, breast hook and bent ribs, costs only $31.00. We can supply the other lumber if you desire, also the hardware and fittings—or we will furnish the complete K. D. boat for $79.00; with a 4 h. p. engine it will cost $147.00; and with a 6 h. p. engine $174.00 for complete K. D. boat. The complete launch like cut, ready to run, would cost $500.00 anywhere.

Look over these boat bargains:

Ready to run		K. D.	Ready to run		K. D.
$300.00	18 ft. motor boat, 2 h. p. engine	$107.25	$250.00	18 ft. cat boat	$113.35
350.00	18 ft. " " 4 " "	127.25	55.00	16 ft. clinker rowboat	20.00
500.00	23 ft. " " 6 " "	174.00	60.00	16 ft. canoe	20.00
600.00	23 ft. " " 8 " "	239.00	40.00	duck boat, 15 ft.	15.95

We will furnish the frames partially or completely erected, if desired.

Ask for boat catalogue No. 24

Brooks Mfg. Co., C C. Brooks, President
508 Rust Avenue, Saginaw, Mich.

This $125.00 Brooks Dining Room Suite for $59.50

You really should have our interesting catalogue, mailed free

BEAUTIFUL furniture is always interesting. This is more than beautiful to you—for it is yours for less than half a dealer's price. The saving comes because you get it in sections ready and easy to put together yourself.

The very latest Flanders furniture, which is as much of a rage as our Mission pieces, is a feature of our pleasing catalogue. Don't fail to get it. You will be satisfied—we guarantee it—your money back if you are not. Ten years of success and experience behind us in serving you.

Look over these bargains:

$14.00	Rocker, with cushion seats,	$ 7.40	$30.00	Dining Table	$12.50
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35.00	Davenport	17.75	10.00	Bookshelf	4.50
18.00	Mission Chair	11.25	6	Dining Chairs, $21.00, for	13.50

$ 6.00	Foot Rest	$ 3.50
20.00	Morris Chair	12.25
22.00	Library Table	9.25
50.00	Dining Table	18.50

Stained and finished free, if desired. Either plain or quarter sawed white oak.

Ask for furniture catalogue No. 11

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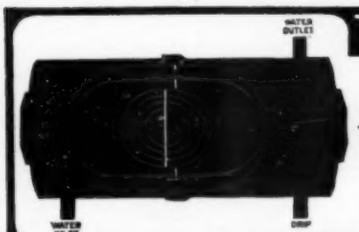

THE RELIABLE WATER JACKETED COIL MUFFLER

FOR GASOLINE ENGINES OF ALL KINDS

Users of these mufflers say that they increase the speed of their engines as well as make an *absolutely silent exhaust*. In the water jacket around the central coils our muffler has a perfect system for cooling the hot gases- with the result that the gases when they are finally discharged out of the muffler are sufficiently near atmospheric pressure to eliminate the usual muffler explosions. Our muffler does not obstruct the discharge of hot gases- as is the case with other "silent mufflers."

INVESTIGATE THIS SIMPLE, SILENT MUFFLER—SEND FOR CATALOGUE

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ELASTIC SEAM-COMPOSITION For DECK and all other SEAMS

ELASTIC FLAT YACHT WHITE Two coats last all season., Price $3.00 per gal. $1.60 per ½ gal.

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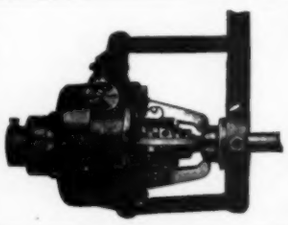

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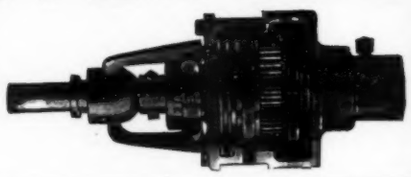
Can be safely made with JOES' GEAR
1910 Models now ready

INSIDE FACTS: Multiple disc friction that won't slip. Three slow running steel spur gears that will neither grumble nor break.
Send for 1910 Catalogue **Joes' Improved Reversing Gears and One Way Clutches.**



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COLUMBIANS WIN AGAIN

At PALM BEACH, FLA., March 19, THE "DEWEY" won with a COLUMBIAN Speed Propeller, and at the SPEED TRIALS, *"Courier II,"* unofficially timed, made 35.73 Miles per hour.

PUT A COLUMBIAN BEHIND and YOU'LL COME OUT AHEAD

MADE OF OUR FAMOUS MANGANESE BRONZE—A Wheel for Every Boat

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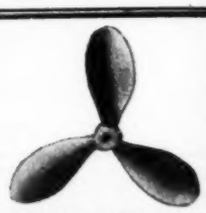

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Palmer Motors and Launches

Two and Four Cycle. One, Two and Four Cylinder. Stationary and Marine. One to Thirty H.P. Catalogue FREE.

PALMER BROS., Cos Cob, Conn.

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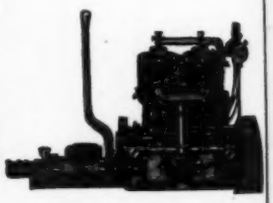

"WHITE" MOTOR & PADDLING CANOES

are made of the best cedar, ribs and planking covered with canvas; spruce gunwales, white ash or oak stems and thwarts and brass-bang plates. The seams are beveled and lapped, making a smooth water-tight canoe, even before the canvas is put on. No cracks, no swelling or shrinking and the result is a stiff, strong, durable canoe. Ask for our descriptive booklet.

E. M. WHITE & CO.
OLDTOWN - MAINE

The Hartford two-cycle marine engines are made in five sizes, ranging from three to ten horsepower, in one and two-cylinder models.
They are thoroughly guaranteed in every way.

Write for catalogue M and prices.

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THE "KENNEBEC"

Sturdy Enough for the Fisherman

The fisherman, who goes out in any and all kinds of weather, day and night,—winter and summer,—puts his engine to the severest test possible.

His very livelihood depends upon the reliability of his motor, and he MUST have an engine upon which he can depend at all times and seasons, and under all conditions.

Do you want a better recommendation than this for the engine for your Motor Boat?

Handsome Enough for the Finest Pleasure Boat

Remember, Mr. Boat-Owner, that while you do want an engine upon which you can depend, and which will stand up under all possible hard knocks, you do not want a rough looking, uncouth mass of metal to put in that handsome new boat of yours, and just because the KENNEBEC stands hard usage and exacting conditions, do not fancy it is a "rough jewel." It runs more smoothly and is the most completely equipped motor that you have ever seen, splendidly finished and in any size exceeds its rated horse-power from thirty to forty per cent.

Ask the Fishermen what they think of the "KENNEBEC" ENGINE

Write for Catalog M

Manufactured by TORREY ROLLER BUSHING WORKS, BATH, MAINE

NEW YORK AGENTS:

THOS. I. SIMPSON & CO., 68 South St.

Get Down To "Brass Tacks"

Make a comparison, if you please, of the LOEW-VICTOR with any other engine of similar rating—(and you may include about 60 per cent. of those claiming a higher rating as well)—and let your own common BOAT WISE-SENSE determine whether you can afford to have any other engine in your boat. Read these specifications

AND BEAR IN MIND — WE MAKE IMMEDIATE DELIVERIES

TYPE.
Four-cylinder, four cycle.
Conceded by designers and engineers to be the best, the most regular and the most positive.

BEARINGS.
All crank case bearings are die cast of white bronze metal.
Can be taken out and replaced in a few minutes.

PISTONS.
Exceptionally long. Made of close-grained gray iron, of the four-ring type—three rings above the piston pin—one oil ring below.

MAGNETO.
High tension, manufactured by Splitdorf.
Would cost you $100 if you bought it separately.

WATER PUMP.
Bronze of the plunger type. Ample. Easy to get at.

CARBURETOR.
"Schebler," made by the Wheeler & Schebler Co., of Indianapolis, acknowledged the best for marine work.

CRANK SHAFT.
Drop forging of high grade material; used by all automobile engine builders and high-grade marine engine manufacturers.
Five main bearings of exceptional length in diameter.
Exceptionally heavy and strong.

Heat treated, bearings ground to one-thousandth of an inch.

REVERSE GEAR.
Of our own design, built amply heavy and strong for an engine of double its power.
All bronze bushed gears in oil-tight casing.

OILING SYSTEM.
Oil circulated through the crank by plunger pump. Automatic.
Simplest known method.
Every bearing taken care of by this automatic splash.

AIR COMPRESSOR.
Of the air-cooled type, with fins for cooling.
Exceptionally large piston area, recuperating rapidly on a tank.
Furnishes enough air for any size whistle.

TESTING.
Every engine is tested with gasoline with its own full equipment.
Carburetor regulated, the magneto timed, all the cables and wires cut to fit, air pump and reverse gear attached, and removed from the testing blocks ready to ship.

HOW WE SHIP.
To you, with all the parts connected up, just as it left the testing blocks, just as we finished testing it, with all parts adjusted, no part is removed from the engine.
You get the engine, set it in the boat, bolt it down, connect up your gasoline and water and you're ready to start.

And the price for this COMPLETE ENGINE? Less by far than you expect—it's but $600.00, with iron crank case. $630.00 with Aluminum case.

Write us for catalog. Tell us about the work you want your engine to do. The style and size of your boat. Among others the following dealers handle the Loew-Victor engine:

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Horton Boat Engine & Supply Co., Rochester, N. Y.
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Pace-Makers for 15 Years!

T & M Engines take the lead in service, power and speed. For 15 years they have set the pace in the race for marine engine supremacy. They have captured prizes galore and won the favor of the world's most conservative engine buyers. Twenty sizes, for every type of craft—each a superb specimen of the engine-builder's art.

T & M Engines

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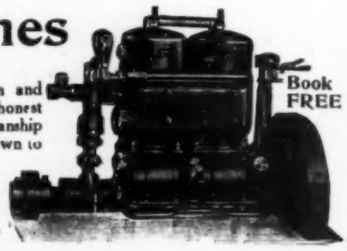
Simplicity is the keynote of design and construction. Liberal dimensions, honest ratings and finest material and workmanship are characteristic of every engine, down to the smallest size.



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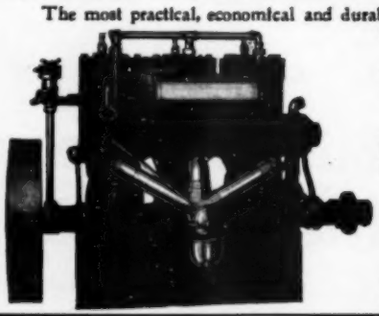

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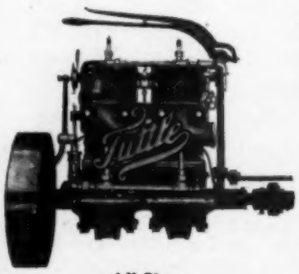

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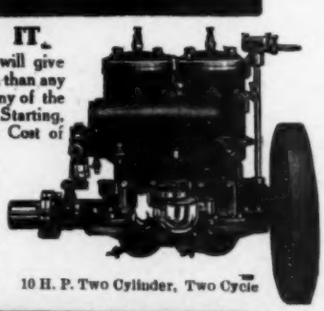

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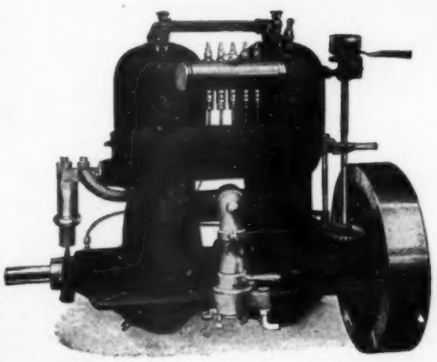

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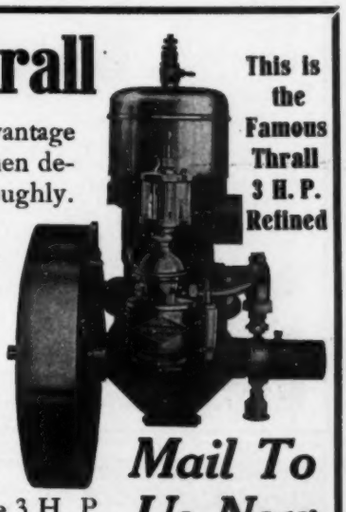
Investigate All--You'll Decide On a Thrall



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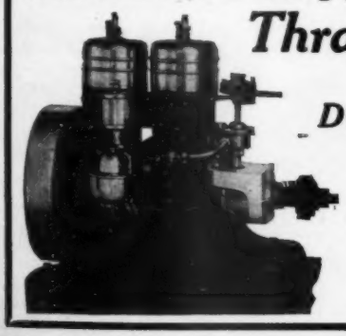

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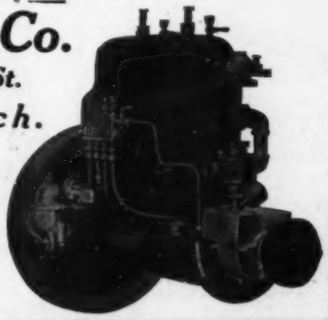

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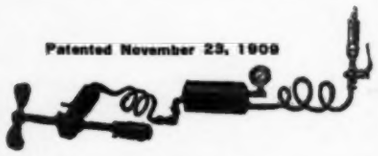

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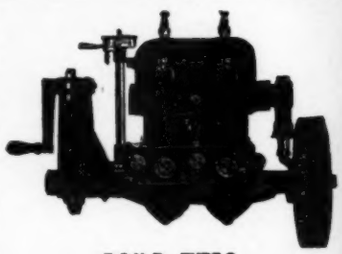

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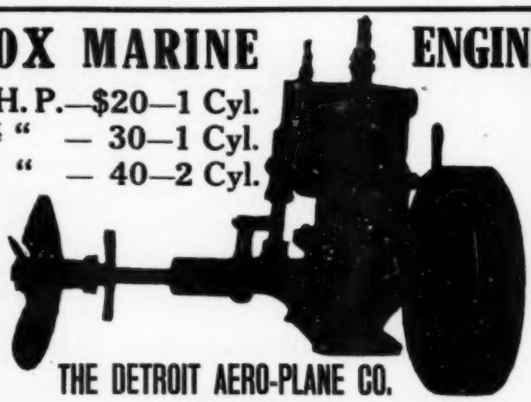

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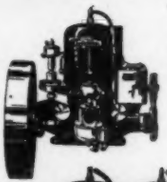

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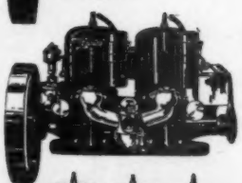

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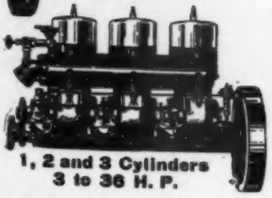

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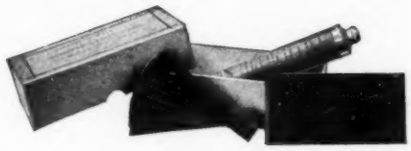

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Don't buy an engine or a boat on promises.

Don't listen to talk about what the engine will do. Find out what it has done.

Compare the actual History of the engine and boat you thought best with that of the

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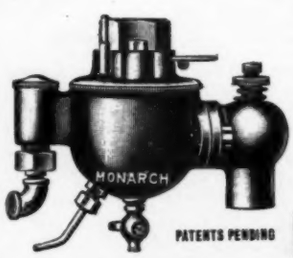
FOR 1910



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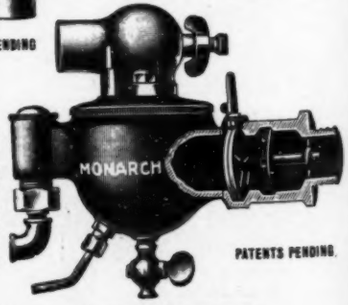

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Double Porcelain (Patented) Easily Separable. The Contraction and Expansion is uniform, the porcelain cap protecting the inner heated tube.

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Throw Water

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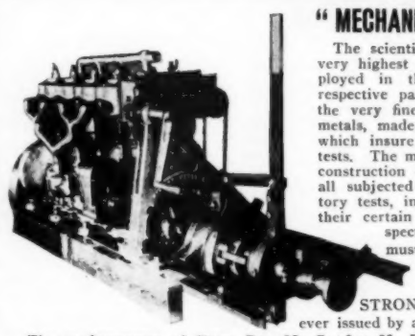

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ARCO SPOTZOFF

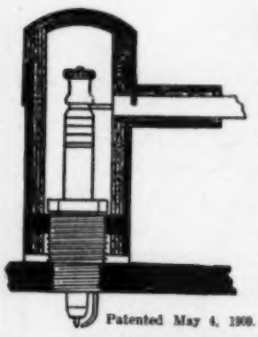
The quickest, cleanest, easiest, snappiest METAL POLISH on earth. Your name on a post card brings you a sample.

Reg. U. S. Pat. Off.

Atlantic Refining Co.
Cleveland, Ohio

LACKAWANNA VALVELESS MOTOR

The World's Simplest, With an Anti-Cranking Feature.
Sent free to any part of the world. Write for it to-day.
LACKAWANNA MFG. CO., 31 Coldwell St., Newburgh, N. Y.
New York Branch, 126 Liberty St.
Philadelphia Branch, 2011 Market St.
Boston Branch, 65 Beverly St.
Chicago Branch, 76 Wabash Ave.


Patented May 4, 1909.

NOTICE

Hundreds of people have answered our previous ads and are happy. Are you going to answer this one? We are only giving away a limited number of these in this manner as a medium of quick advertising. For the first 200 inquiries received we will send postpaid an article worth $2.00. DON'T hesitate.

This device is positively waterproof.

Burnham Spark Plug Co.
East Edgecomb, Maine.

1910 Speed Motor Canoe $110 Complete

A high speed, perfectly safe boat of a wonderful model. All the luxury of canoeing, all the charm of motoring at high speed, with all the safety of a cruiser—stiff—steady—safe—graceful in design—dry. Comfortable arrangement—and the strongest motor canoe made. Fully guaranteed. Twenty feet long—made of cedar—copper fastened—equipped with the simplest, most reliable, smoothest running, highest grade 3 H. P. engine made. Send today, for Power Canoe Bulletin No. 31. (44)
DETROIT BOAT CO., 38 Canton Ave., Detroit, Mich.

The GORDON Propeller

Is the very best Reversible and interchangeable Blade Equipment ever made.

GET CATALOG
LIVE WIRE AGENTS WANTED
GORDON PROPELLER CO.
Cleveland, Ohio

CAVITO UNDERWATER EXHAUST

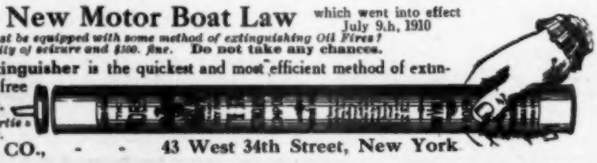
"The Best In the Bunch"

Makes boating a real pleasure by eliminating Noise! Smoke! and Smell! 1¼-in. Bronze, $4.50. 1½-in. Bronze, $5.50. All jobbers.

CAVITO UNDERWATER EXHAUST CO.
44 Ottawa St. Grand Rapids, Mich

Have you complied with the **New Motor Boat Law** which went into effect July 9th, 1910
requiring that all Motor Boats must be equipped with some method of extinguishing Oil Fires?
Penalty for non-compliance, liability of seizure and $50. fine. Do not take any chances.

The Phoenix Dry Powder Fire Extinguisher is the quickest and most efficient method of extinguishing all kinds of Oil Fires. Refilled free of charge. Always ready for instant use.



Send for circulars and testimonials from parties who have used the Phoenix in Motor Boat Fires.
PHOENIX FIRE APPLIANCE CO., - - 43 West 34th Street, New York

SPARLING-McCLINTOCK MOTOR BOATS

Send for Our Latest Illustrated Catalog
SPARLING-McCLINTOCK CO., Grafton, Ill.
Manufacturers of Motors, Motor Boats and Aeroplanes

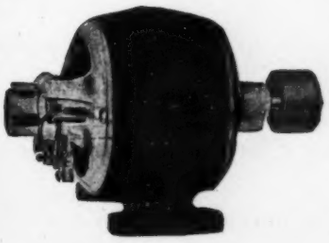
Schug Electrical Specialties

6 Volt—60 Ampere Storage Battery

Price **$15.00**

Automatic Switch Board

Price **$18.00**



10 Volt—5 Ampere Generator

Price **$25.00**

The above outfit (complete) with connecting wires **$54.00**

This outfit is strictly first class in every respect and will furnish sufficient current for ignition and the running lights. Larger outfits for cruisers—residence lighting from **$70.00** up

Double Dash Coil

Price **$17.50**

We also manufacture strictly high grade Spark Coils, Plugs and other Electrical Specialties

Portable Battery Lamp

PRICE COMPLETE **$1.60**

Write Department J for Latest Illustrated Catalog

Schug Electric Manufacturing Co.

Detroit, Michigan

Mr. Motorboat Man

INFALLIBLE AS
A COMPASS IS

Our FREE Book of MOTOR BOAT and YACHT Equipment

as a Guide to Safe and Comfortable Going.

In word and in picture it describes and illustrates every conceivable need and luxury for water-craft of every sort.

Our long experience insures your receiving as great satisfaction by mail as you would in making selection in person. We have the right goods at the right prices.

In Our Made-to-Order Department

We make Boat Covers, Cushions, Spray Hoods, Flags, Sails and Yacht Awnings at the lowest prices commensurate with best workmanship,—and "On time Delivery"—is our slogan.

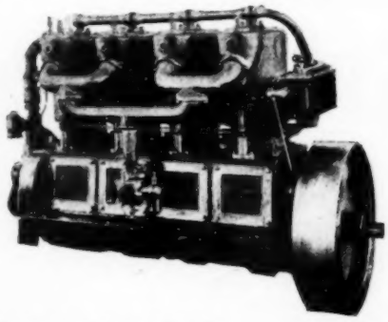
If you would know the greatest Marine Hardware concern in the United States, send for our *Free* Book to-day.

John C. Hopkins & Co.

119 Chambers Street, New York

ANDERSON-QUALITY

NOT THE FASTEST BUT EASILY THE SAFEST



RIGHT IN PRICE AS WELL AS QUALITY

ANDERSON ENGINE CO., Shelbyville, Ill.

Costly Features at Low Prices in Our Boats

WE SPECIALIZE ON TWO MODELS

Our *"FIREFLY,"* 18 feet in length, equipped with a single cylinder 4 horsepower or double cylinder 8 h.p. motor at from $131 up, and

Our *"NAUTILUS"* 20 feet in length, equipped with either a 4 or 8 horsepower motor at $177 up.

They have hooded engine compartment, bulkhead motor control, underwater exhaust, etc. Our *"FIREFLY"* pamphlet explains their excellent features. Write for it.

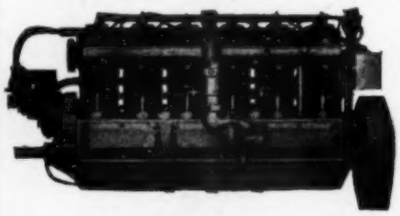
THE BREIN MARINE WORKS

Dept. O. Rock Island, Ill.

"VANBLERCK" MARINE MOTORS

2 cyl. 5 x 6 12-15 H. P.
4 cyl. 5 x 6 25-30 H P.
6 cyl. 5 x 6 40-60 H. P.
For Pleasure and Cruising Craft

4 cyl. 5½ x 6 40-60 H. P.
6-cyl. 5½ x 6 60-80 H. P.
For Semi- and Racing Craft

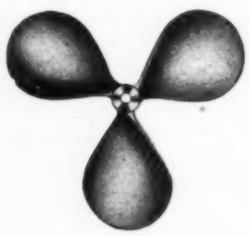


These motors and equipment are strictly first class, built for hard service, are absolutely reliable and efficient, and fully guaranteed. Our descriptive catalogue will be sent to interested parties upon request.

VANBLERCK MOTOR CO.
DETROIT - - - - - - - MICHIGAN

THE HYDE TURBINE TYPE PROPELLERS

are designed to develop the highest speed, and are made of Manganese Bronze with a reputation.



"IF YOU WANT THE BEST BUY A HYDE"

Ask for prices

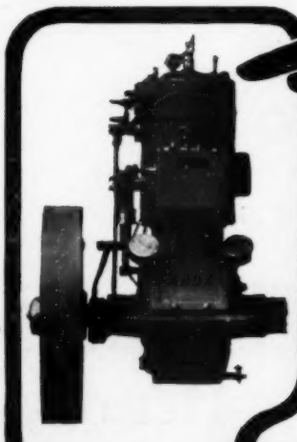
HYDE WINDLASS COMPANY, -:- BATH, ME.

STYLE — SPEED — SIZE — SAFETY — ELEGANCE — THE COST IS WITHIN YOUR MEANS

Outing boats are good boats—the staunchest, trimmest, most reliable little craft that ever cut the water. They're built for speed, beauty and comfort—and they are *low-priced.* Judged from every boat standard, size, materials, workmanship and equipment, they are the lowest priced boats ever put on the market. But low price is not their strongest selling point—it's the Outing quality that sells Outing boats.

If you're thinking motor-boat, you ought to know all about Outing boats before you buy. Write to-day for the Outing Boat Book, prices and full information. Mailed free.

Outing Boat Company
Dept. B
Ashland, Wisconsin



Knox

The Reliable Motor with the Power

Remember the Motor is the Heart of your boat, Do not consider first cost only. Buy a Reliable and Powerful Motor so you can have the pleasure with your boat that you are expecting. The KNOX will give this to you.

Sizes—2½ H. P. to 40 H. P.—Two- and Four-Cycle.

Send for Catalogue.

Camden Anchor-Rockland Machine Company, Camden, Maine, U. S. A.

	Length	Beam	Speed Miles Per Hour
(1) "Mascot," Owner, E. Corsepius, Fort Madison, Ia.	22'	4'	33.47
(2) "102," Owner, Capt. Rattray, Marine City, Mich.	23'9"	3'9"	31.75
(3) "Coyote" (Full Speed), Owner, Fred B. Smith, Terre Haute, Ind.	29'	4'	30¼
(4) "Coyote" (Under Check), Owner, Fred B. Smith, Terre Haute, Ind.	29'	4'	30¼
(5) "Evangeline," Owner, Albert Arnold, Bay City, Mich.	29½'	4'	30
(6) "Teddy II," Owner, A. Ashmund, Bay City, Mich.	25'	3'½	31

IDLEWILD, JR., winner at Maysville, Ky., July 4th, 1910

Other very fast boats with P. B. Engines will be illustrated in our next advertisement in this publication

Ernest Corsepius Announces That He Will Race the "Mascot" Against Any Boat In the United States

The undersigned, owner of the "Mascot," a 22-foot power boat of between 40 and 50 horse power, which holds the Eastern championship in the 32- and 26-foot classes, hereby challenges the "Hoosier Boy," the Western 40-foot champion; the "Lamb IV," the champion of the Mississippi Valley Power Boat Association; the "Redtop II," of Bellevue, Iowa; the "Independence II," of St. Louis, OR ANY OTHER BOAT IN THE UNITED STATES NOT OVER 40 FEET IN LENGTH, REGARDLESS OF POWER (barring only "Dixie II") for a race of from ten to twenty miles at Peoria, Ill., or at any point on the Mississippi River for a purse of $500 a side and any trophy which may be offered by any city desiring the race. If more than one boat desires to accept this challenge, each owner to deposit $500, winner to take all. Race to take place as soon as possible before the close of navigation this fall—Daily Gem City.

(Signed) ERNEST CORSEPIUS, Fort Madison, Iowa.

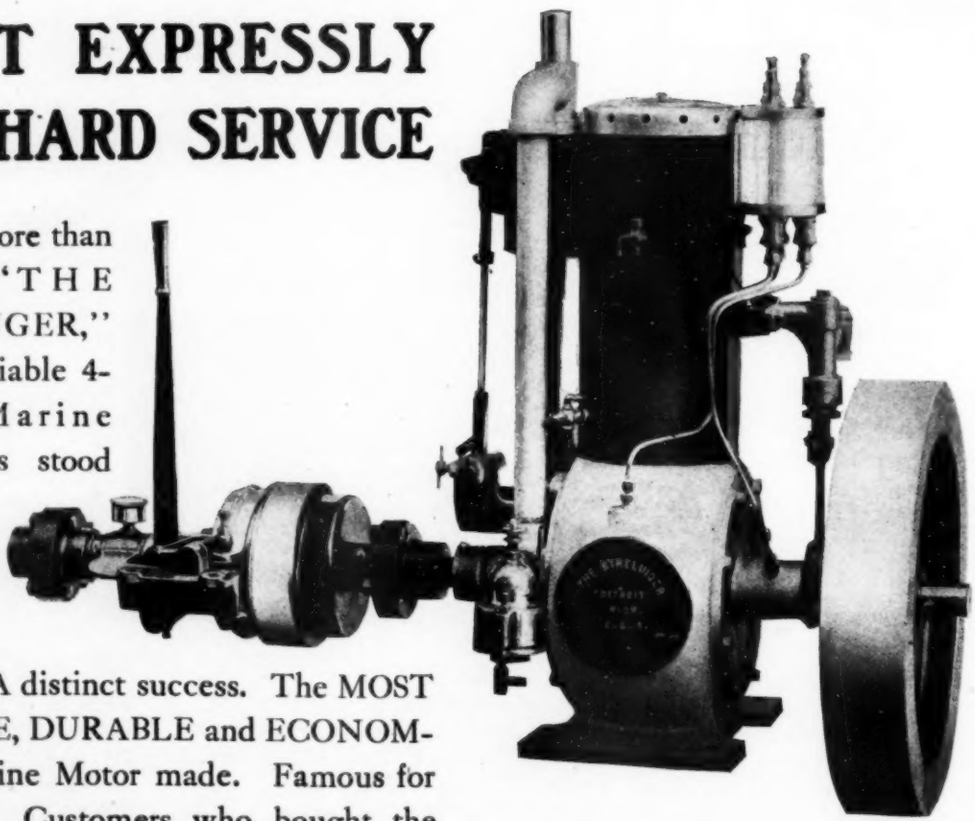
This challenge appeared in various newspapers, and was also telegraphed to owners of the fastest boats in this country, **yet none accepted.** The speeds as given above are given from **various GOVERNMENT MEASURED COURSES,** and are **correct.** We don't only claim these engines are the **lightest** and **most POWERFUL ENGINES EVER BUILT,** but **GUARANTEE** them to be the **STRONGEST** engine ever built for speed purposes. **They stand up,** and **WIN** in the **long distance races.** We are not making **IDLE CLAIMS.** We show you the best line of **PROOFS that is possible for anyone to show.** Our engines are not only built of the best material we can buy, but **"BUILT LIKE A WATCH,"** and the very highest grade watch at that. All we are after is **HONEST BUSINESS.** Try us. **FACTS TALK.**

Send for Catalogue

PIERCE BUDD CO., Bay City, Mich.

STRELINGER MARINE ENGINES

BUILT EXPRESSLY FOR HARD SERVICE



For more than 12 years "THE STRELINGER," the old reliable 4-Cycle Marine Motor, has stood for the best in Marine Gasoline Engines. A distinct success. The MOST RELIABLE, DURABLE and ECONOMICAL Marine Motor made. Famous for *endurance.* Customers who bought the first engines write, "It is as good today as the day it was purchased, always goes, and never gives any trouble, have not spent a dollar for repairs." That is the engine you want.

January, 1910, we purchased the United Manufacturing Company's Plant and will continue the manufacture of the "LITTLE GIANT" 2-Cycle Marine Motor. We can furnish you Engines from 1½ to 60. H. P. Agents wanted. Send for *Free Catalog* today. Send 10c for a nickel-plated pocket marine compass.

The Strelinger Marine Engine Co.

Nos. 171-175 Woodbridge St. West, Detroit, Mich., U. S. A.

BUILD A HOME, BOAT HOUSE OR GARAGE IN 2 HOURS.

The Kenyon Take-Down Buildings are the simplest, most serviceable and least expensive portable buildings on the market, and the only really convenient buildings built.

KENYON TAKE DOWN BUILDINGS.

You can easily build the largest size Kenyon House, yourself, in two hours—**one-tenth** the time really required for any other portable house. No tools, no nails, no experience necessary. Weighs less than half as much as any other, yet far more serviceable.

Wind-proof, cold-proof, rain-proof. Can be used any time, anywhere, for either outings or permanent dwellings. Warm in winter, cool in summer. Best ventilated and most healthful house to be had. Flexible window-lights and rust-proof screens fold right up with rest of house. Curtains can be used as blinds or awnings and can be operated from inside. Porch with screens form outside dining room. Best quality Georgia Pine Floor throughout.

The Kenyon Take Down Boat House and Garage is as far superior to all others as the Kenyon Take Down House is to other portable houses.

3-Years' Guarantee.

We furnish an iron-clad guarantee to refund every cent you pay us if any Kenyon Building doesn't give perfect satisfaction in every way for at least three years.

We make any size house, to suit any need. Also garage for any style car—or boat house for any size boat. Write today for beautifully illustrated free catalog that tells all.

Carry Your House in a Wheelbarrow!

The R. L. KENYON CO., Dept. K, Waukesha, Wis.

"THE YANKEE" SILENT MUFFLER AND POWER WHISTLE OUTFITS

YANKEE MUFFLER
PAT. AUG. 31, 1909.

THE YANKEE MUFFLER

Constructed of sheet steel, riveted seams, asbestos lined and galvanized. Water cooled for boats. Will operate successfully on 2 or 4-cycle gasoline engine. NO BACK PRESSURE. ABSOLUTELY SILENT. Sizes: ½ to 150 H.P. Satisfaction guaranteed. Over 200,000 in use.

The YANKEE CO., Box "MB," Utica, N.Y.

Both for sale in New York by Durkee & Co., 2 South St.; E. J. Willis Co., 8 Park Place; Chas. E. Miller, 97 Reade St.; P. O. Chapman & Co., 90 West St. Philadelphia: W. F. Carmen, Bourse Bldg. Chicago: Bullock-Waite Co., 86 E. Lake St. San Francisco: California Gas Engine & Supply Co. Canada: Canadian-Fairbanks, Montreal and Toronto.

YANKEE WHISTLE OUTFIT

Complete as shown in cut Nos. 4, 5, 6, 7—$20.00 to $30.00

The Yankee Whistle Outfit may be attached to any gasoline engine of any make or description in a few minutes.

It takes no power from the engine.

It has the only automatic CHECK valve that does not operate on compression. AN EXPLOSION MUST TAKE PLACE IN THE CYLINDER OR VALVE REMAINS CLOSED.

Absolutely safe. No live gases can enter tank.

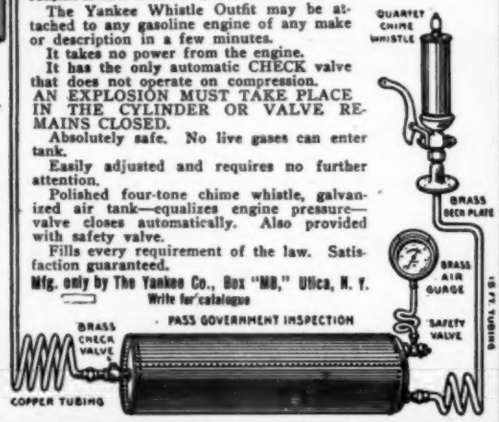
Easily adjusted and requires no further attention.

Polished four-tone chime whistle, galvanized air tank—equalizes engine pressure—valve closes automatically. Also provided with safety valve.

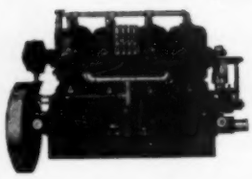
Fills every requirement of the law. Satisfaction guaranteed.

Mfg. only by The Yankee Co., Box "MB," Utica, N. Y.
Write for catalogue

PASS GOVERNMENT INSPECTION



DOMAN

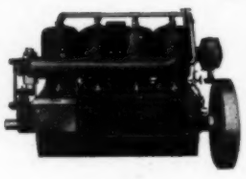


ASK AN OWNER

BUILT
5 to 200 H. P.
2 to 8 Cylinders
Write for Catalogue

The H. C. Doman Co.

OSHKOSH "Dept. F" WISCONSIN



DIRIGO OIL COMPASSES are made on honor and are always reliable. The cost is trifling considering the many years service one will give. The expensive compass is the inferior one. To be of any use a compass must be accurate. Ask your dealer for the DIRIGO, or we will send on approval.

THE DIRIGO ELECTRIC COMPASS LIGHT utilizes the best possible light for your compass in a most convenient, reliable and economical way. It may be easily attached to the binnacle or the compass itself and operates at a cost of about one cent an hour. Price $2.00 at your dealer's or sent postpaid.

SEND FOR CATALOG.

TRADE DIRIGO MARK

Manufactured by
EUGENE M. SHERMAN, Reade St., LEXINGTON, MASS.

(Patent applied for.)

MILTON BOAT WORKS

BUILDERS OF ALL TYPES OF POWER BOATS, SAIL BOATS AND DINGHYS. MARINE RAILWAYS, REPAIRING AND SUPPLIES

RYE, NEW YORK

New Stock designs of 20 and 25 foot semi-speed boats now ready with material and workmanship up to the usual high standard of our built to order boats. Knockdown frames of these can also be supplied

THE WISE MAN ORDERS NOW

Members of the National Association of Engine and Boat Manufacturers

One feature of the PFANSTIEHL COIL which makes it worth your while to look into it further is our patented system of winding, which enables us to guarantee the windings for five years.

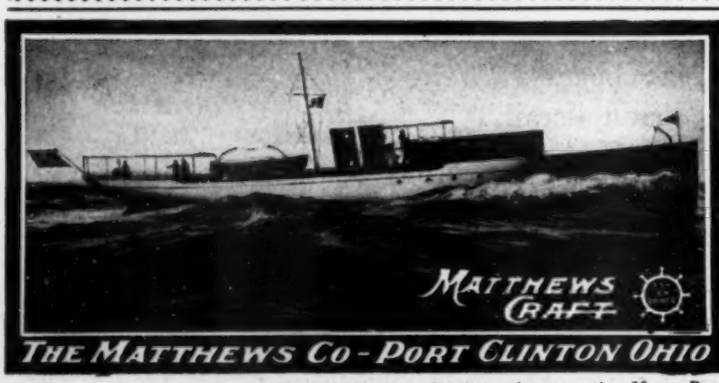
Write us to-day

Pfanstiehl Magnetos and Coils

With a PFANSTIEHL MAGNETO you don't need a battery ignition system in your car. You can start your car on the magneto. It is a high tension magneto at a low tension price.

Write us to-day

Pfanstiehl Electrical Laboratory, North Chicago, Ill.



THE MATTHEWS CO - PORT CLINTON OHIO

The MATTHEWS CRAFT embrace all types of pleasure boats. Cruisers a specialty.

The MATTHEWS name guarantees the grade and satisfaction in service.

The MATTHEWS price permits the use of the highest grade of materials, workmanship, and equipment.

Why risk the whole investment for your pleasure to save a little in the initial cost?

Why pay more than a MATTHEWS price when you can obtain nothing better?

Seventeen years of experience count for something—there is no article built where experience counts for more than in a pleasure craft. "Ask an owner."

Estimates, catalogs and plans on request.

MoToR BoatinG

THE NATIONAL MAGAZINE OF MOTOR BOATING

is the shortest cut to a complete knowledge of the long experience of expert motor-boatists

NO matter what you want to know about motor boats, their upkeep, running parts or accessories, you will find what you want to know in the handsomely illustrated editorial pages of MoToR BoatinG. The advertising pages, just as important to the reader as the editorial pages, contain the first announcements of the leading manufacturers.

To introduce MoToR BoatinG to you we make this

Special Offer MoToR BoatinG every month for a year for $1, and *free*, a copy of "FROM NOVICE TO PILOT"—the one authoritative book on how to run a motor boat.

Send us your name and address with a dollar bill—and mail *now*, at our risk, to

MoToR BoatinG, 1789 Broadway, New York

"Everything That Floats"

Send today for full particulars and specifications of the new Racine, 36-foot Raised-Deck Cruiser selling at $2,200; the 28-foot Cruiser at $1,200; the Racine Speed-about at $300; 16-foot power Dory at $150, etc. We make every sort of power, row and sail boats and canoes. Don't buy anywhere until you have our money saving facts.

Racine Boat Mfg. Co., 540 Western Ave., Muskegon, Mich.

GRIMM MOTOR

FOUR CYCLE; Two, Four and Six Cylinder

Write for Particulars

GRIMM MANUFACTURING COMPANY
100 Erie Savings and Loan Assn. Building, BUFFALO, N. Y.

8-DAY SHIP'S BELL CLOCK

Heavy Brass Case $12.00
5 inch Dial
Strikes 8 bells as aboard ship

W. H. ENHAUS & SON
31 JOHN STREET, NEW YORK CITY

We are the only manufacturers of
Metal Hinged Valve Closets
They work easier, last longer, and require less care than any other closets on the market.
Send for our 1910 Catalog
Goblet-Dolan Co.
32 Old Slip, N. Y.

If you want Good Circulation on your
Automobile, Launch or Motor Boat use a
LOBEE PUMP
Lobee Pump & Machinery Co.
57 Bridge Street -:- Buffalo, N.Y.

TOPPAN POWER DORIES & MOTORS

Safe. Best Sea Boat Built. $125 up. Send 4c. in Stamps for Catalog.

KNOCK DOWN DORIES, EASY TO BUILD
Send for free circular and prices.

Toppan Boat Mfg. Co., 21 Haverhill St., Boston, Mass

When writing to advertisers please mention MOTOR BOATING, *the National Magazine of Motor Boating.*

TRADE MARK REG. U.S. PAT. OFF.

"DETROIT"

VALVELESS, FORCE FEED

OIL PUMP

TRADE MARK REG. U.S. PAT. OFF.

No Ball Checks — Cold or slightly Dirty Oil can't interfere with feed. It's simple but positive

The Pump that Oiled the COMET'S way to Success in the PEORIA RACES

Attach it to your motor and *know* that the Cylinders, Bearings, etc. are receiving the right kind of oil in the right place in just the right quantity

Here's the Proof — Read it

IOWA MARINE ENGINE AND LAUNCH WORKS
BUILDERS OF THE
Celebrated Iowa Marine Motors and Launches
BELLEVUE, IOWA

Detroit Lubricator Co., July 11th, 1910.
Detroit, Mich.

Gentlemen:- Please ship us as soon as possible by express another 13 feed Oiler, same type as you shipped us on the 10th ult.

We are pleased to state that we tried this oiler on the six cylinder engine in the boat "COMET" which won the races at Peoria, Ill., July 4, 5 & 6, and find that it worked perfectly. It is the best oiler we have ever used. Yours truly,

IOWA MARINE ENGINE & LAUNCH WORKS.
Per J. M. Brandt.

Our Booklet A 64 will solve your Lubrication Problems
Write for it

DETROIT LUBRICATOR COMPANY,
DETROIT, MICH., U. S. A.

THE ONLY TIME when anyone is justified in tearing a good engine to pieces is to repair actual breakage. Thousands of perfectly good engines are needlessly ruined by the old-fashioned process of scraping out carbon---a ticklish job for even the best mechanics.

People used to tear steam boilers to pieces to remove shale deposits. "Boiler compounds" do the work to-day, in spite of the offended mechanics who opposed the new and easier way.

Why expose your engine to needless risk? Why stand for the delay and expense of antiquated methods?

Prest-O-Carbon Remover

loosens and removes all carbon from cylinders, valves, pistons and piston rings. Increases compression and power. Gives an old engine new life, and a new engine longer life.

Simply inject it into the cylinders with a squirt gun. Directions on can.

Easily and cheaply used at home, but your repair shop will do the job for you if you prefer. The usual charge for a thorough cleaning is $3 to $5. The usual cost of the old scraping method (not including injury to motor) is $15 to $20. Can't you use the saving?

Give your engine a thorough cleaning with Prest-O-Carbon Remover, and then use it as a preventative, say, once a month. This method keeps your engine free from carbon, prevents valve grinding, gives you full power at all times, with less noise and fewer repairs.

Our Guarantee Protects You

If Prest-O-Carbon Remover (not one of the numerous imitations) does not give you perfect satisfaction, write us, giving name and model of engine, and we will help you. Or simply ask for your money back, and we will refund immediately.

If your dealer does not supply you promptly, send your order to us.

Retail prices: Gal., $3.75; Half Gal., $2; Quart, $1.

The Prest-O-Lite Co.

260 E. South Street, Indianapolis, Ind.

Branches at New York, Boston, Philadelphia, Pittsburg, Cleveland, Chicago, Detroit, Providence, Minneapolis, Omaha, Dallas, Milwaukee, Los Angeles, Kansas City and San Francisco.

"The Repair Man's Loss Is The User's Gain"

And naturally any product which reduces repair bills does not please certain short-sighted repair shops. Wherefore, some mechanics love to say that "those carbon removers don't work," "eat the metal," etc.

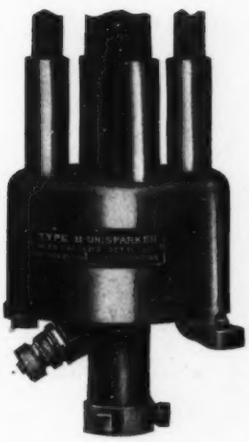
Remember our guarantee on Prest-O-Carbon Remover. And if it injures the metal of your engine in any way, show us and we'll buy you a new engine.

Thousands of "square deal" repair shops are using Prest-O-Carbon Remover with perfect results. And there's good money in it for the repair man because it attracts and satisfies a larger number of customers. There's probably a shop of this kind near you. Write us for the name, if you wish.

If your repair man tries to keep you from testing Prest-O-Carbon Remover you'd better make a change. Be sure you get the genuine article, and then give it a fair trial.

Write us for the testimonials of designers, manufacturers, dealers, repair shops and individual users endorsing Prest-O-Carbon Remover. Get the facts!

THE ATWATER KENT UNISPARKER



Gives Perfect Ignition

For motor boat or motor car engines. Consisting of a unique contact maker, distributor, and non-vibrating transformer, it combines the accurate, intense sparking of the best high-tension magnetos with a simplicity which is truly remarkable. It has no vibrators, and no commutator, and there are but three moving parts on the instrument. It has steadily grown in favor for six years

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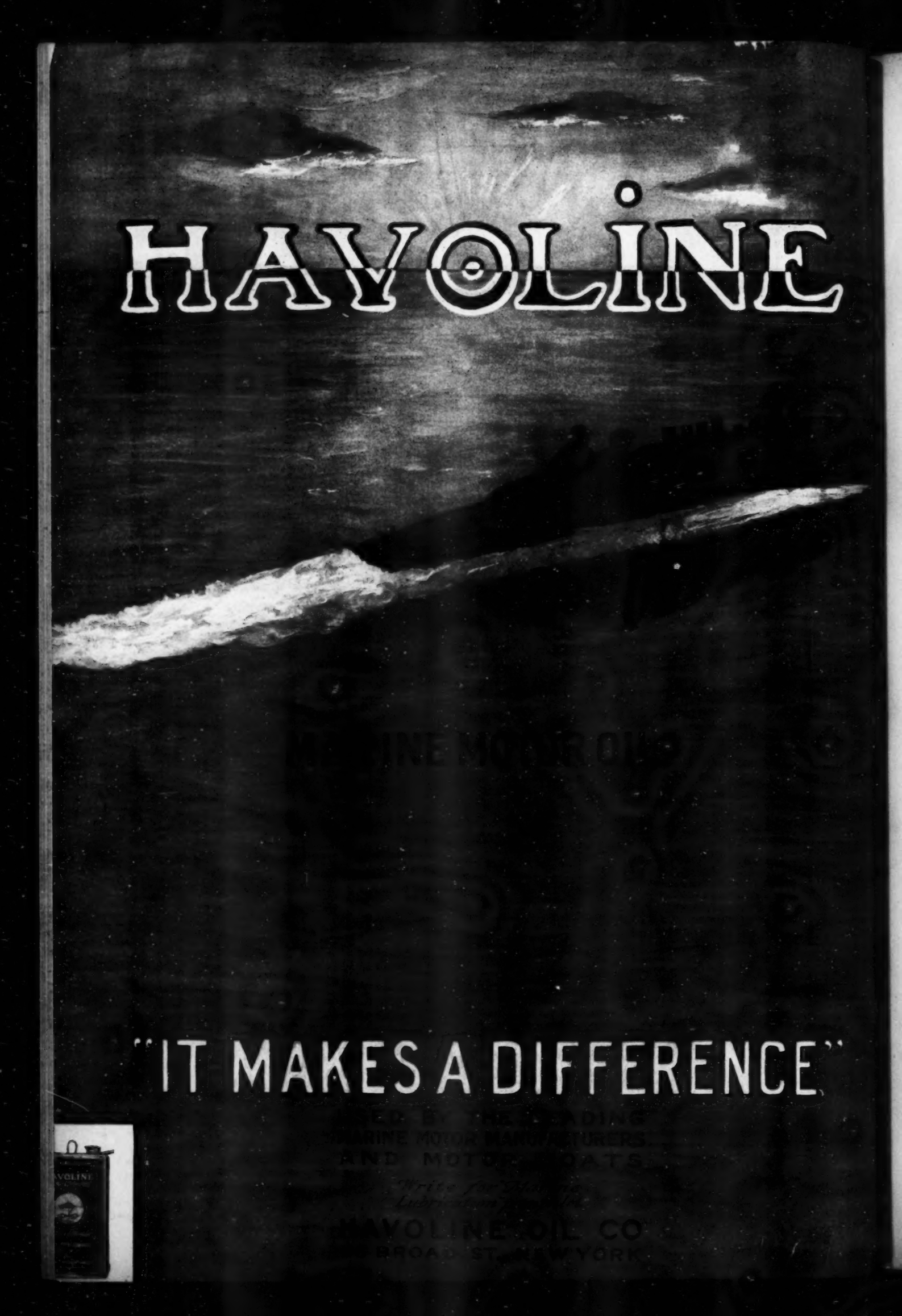
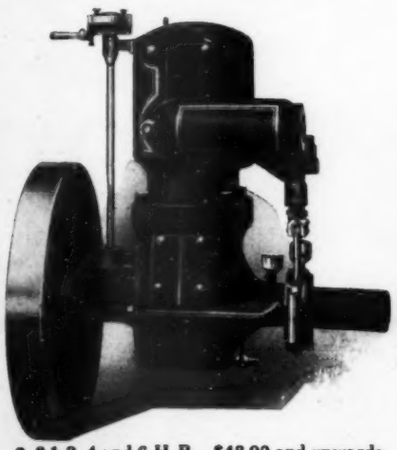

HAVOLINE
"IT MAKES A DIFFERENCE"

PERFECTION ENGINES

FOR BOATS OF ALL KINDS



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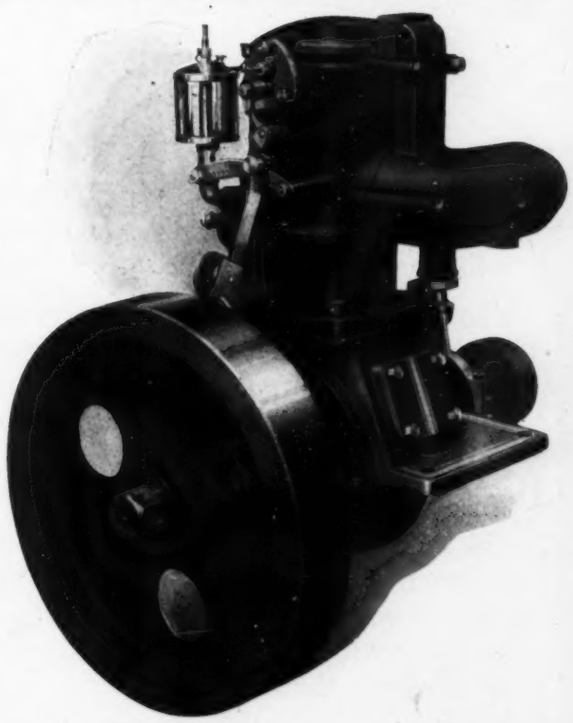


2, 2 1-2, 4 and 6 H. P $48.00 and upwards, complete outfit.

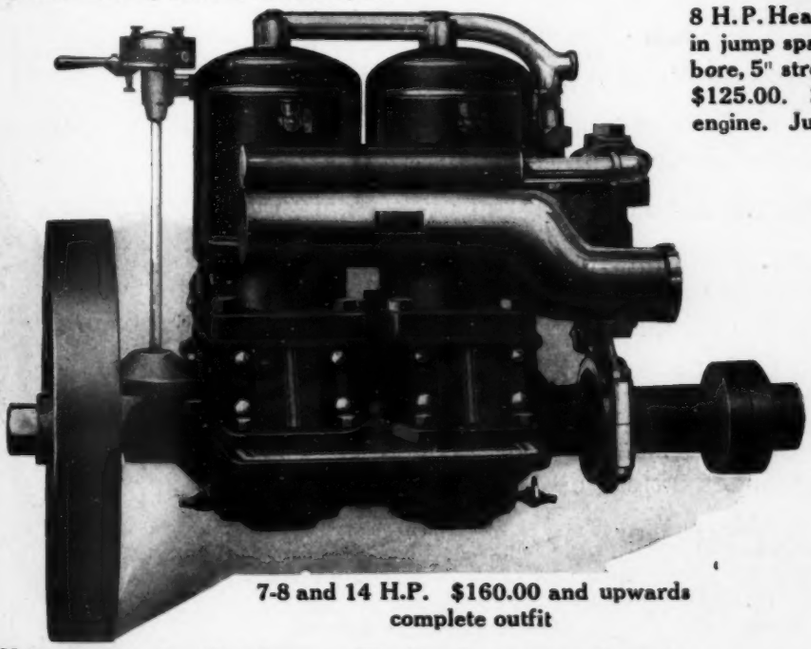
8 H.P. Heavy Duty for work boats, made in jump spark and make and break, 5 1-4 bore, 5" stroke, 8 H. P. at 600 revolutions, $125.00. Strictly a commercial or work engine. Just the outfit for fishing boats.

We *Guarantee* Satisfaction

We don't ask you to buy a "Perfection" engine because we **say** it will satisfy you but because it **must** satisfy or we replace it free of charge.

Hundreds of buyers have written us that they are astonished at our liberal methods and our fair treatment, but we believe that no **"Perfection" engine** is actually sold **until our customer is satisfied.**

Perfection engines are strong, simple, reversible, easy to start and operate; thoroughly dependable under every condition. Finest equipment, including Schebler carburetor, etc.



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Where every part of the Perfection is built

Small cut of our large factory

Write at once for Catalogue. The handsomest and most complete ever published on marine engines. IT'S FREE.

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You Can Always Depend On Reliance Spark Plugs

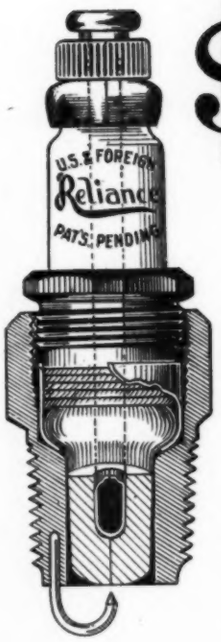
The power of your engine depends on receiving a quick condensed spark of heat for every charge of gas.

Buying cheap spark plugs means that you are almost certainly reducing the efficiency of your engine.

The Reliance delivers a concentrated, hot spark, **every time**, regardless of any accumulation of soot, carbon, etc., which will put cheaper spark plugs out of business. You can always depend on it.

Here is a test that will show you that the Reliance cannot be short-circuited like the ordinary spark plug. Put both plugs in a glass of water, turn the current on and the Reliance will spark right along. No other plug will do the same.

The Reliance needs no attention. Its action does not depend on valves or moving parts, but is entirely electrical in action.



$1.00

There is no combination we have yet found in any kind of gas engine cylinder that will make the Reliance lay down and quit.

Isn't that the kind of spark plug you want in your engine?

Ask your dealer for the Reliance. If he hasn't it, don't run risks of trouble by accepting a cheaper substitute, but write to us. We will fill all orders promptly prepaid on receipt of price.

Our booklet on spark plugs makes interesting reading for every owner of an automobile or motor boat. Send for a copy—today, while you think of it—and get one of our astonishing electrical novelties free.

MAGNETO TYPE $1.25

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Jeffery-Dewitt Co.

Manufacturers of Reliable Spark Plugs

57 Butler Avenue
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THE

Motor Boat Store

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New York

$1.00 Worth for 50c.

—Established 15 Years—

New 1911 Complete Catalogue "B" Mailed Free

We are the leading low price Marine Hardware Dealers in the United States, and are now located in our new and commodious building, which is equipped with every facility for prompt deliveries; and in our new 1911 Catalogue "B" can be found your requirements. Send for it.

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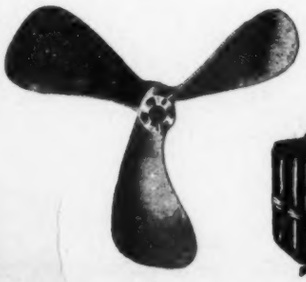


MARINE "BUFFALO" ENGINES

For uninterrupted Pleasure

For dollar-getting Work

For prize winning and record breaking

Twenty-two models in Regular, Heavy Duty, and High Speed Types.

2 to 225 H. P.

1 to 8 cylinders Vertical and "en V"

"The Engine of Constant Service"

Advice is cheap---but often it's good. Take this for what it's worth.

It will save you much money, time and temper if you buy an established engine that has made good in actual service for many years for many satisfied users, rather than fall a victim to the engine seller who has a force feed lubricator in the roof of his mouth and whose oily tongue is not geared to his conscience.

Several score sellers of untried engines—all of whom have the "largest marine engine factory in the world" and guarantee (?) you most anything within the flight of fancy—say that we, the builders of BUFFALOS, are "conservative." It's a compliment.

We are conservative—*conscientiously* conservative—conservative in that we *under rate* BUFFALOS as to horsepower and do not make exaggerated claims, or lead you to believe we are giving you something for nothing.

BUFFALOS have made good for so many years, in so many countries, under so many tough and varying conditions, that they need no glowing description.

We hold forth no glittering promises—we merely point to what BUFFALOS are doing and have done.

We build BUFFALOS just the best we know how, in a big, modern plant. We don't know whether or not it's the largest marine engine factory in the world—we've never measured all the others and we only state what we *know*.

BUFFALOS are high grade engines and command the price of a high grade product. Get the BUFFALO catalog, which contains just the detailed facts and figures, without the adjectives and exaggerations. Compare horsepower as related to bore, stroke and R. P. M. For a dozen years BUFFALOS have sold as the no-trouble, cheapest-in-the-end engine.

Back of it all is the BUFFALO reputation and the BUFFALO conservatism, which means honest statement of fact about an honest engine at an honest price.

BUY WISELY

1204-16 Niagara St. BUFFALO GASOLENE MOTOR CO. Buffalo N. Y.

Culver Naval School Launch equipped with a 24 H.P. Lamb Motor, towing 12 Cadet Boats on Lake Maxinkuckee.

LAMB MARINE ENGINES

In 1903 Major L. R. Gignilliat, Commandant of the famous Culver Naval School on Lake Maxinkuckee, Culver, Indiana, bought a 35 foot launch equipped with a four cylinder, 24 H. P. *Lamb Engine*, for the school.

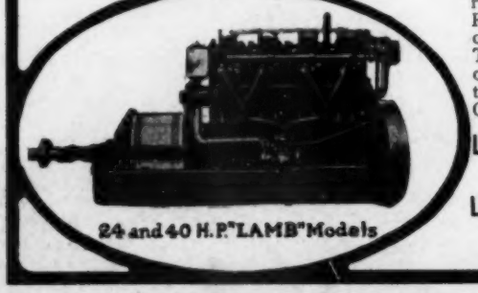
Since it was bought seven years ago this engine has been put to hard service and has again proved the wearing qualities of *Lamb Motors*.

It has never been overhauled and is still in perfect running condition.

Read the testimonial letter of the Commandant of the school.

The durability, low cost of upkeep and reliability of *Lamb Engines* attracts the conservative motor boatman.

Our prices are right—send for catalogue.



24 and 40 H.P. "LAMB" Models

LAMB BOAT & ENGINE CO. Dept. M., Clinton, Ia.

Members National Association Boat and Engine Mfrs.

LAMB BOAT CO. of NEW YORK Dept. M., 30 Church St.

Eastern Distributors.

In a letter, Major Gignilliat writes the Lamb Boat & Engine Co.

"Gentlemen:—

"I am sending you under separate cover a number of photographs showing the boat we purchased from you several years ago.

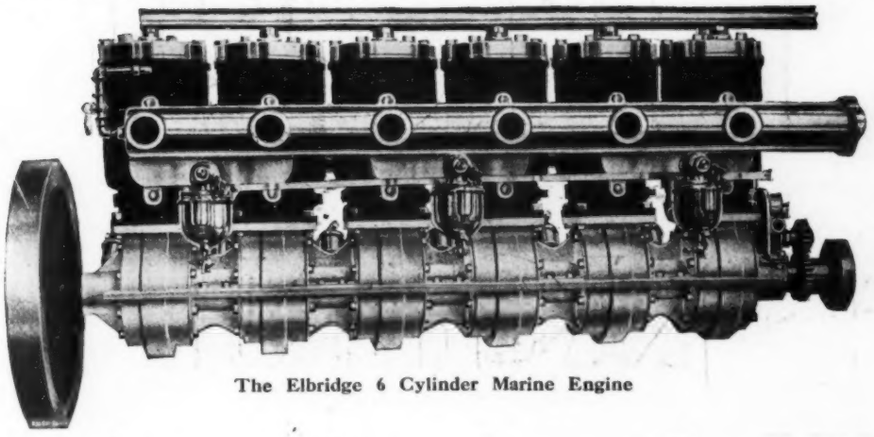
"The boat is a very handsome one. We have used it a great deal on occasions of ceremony, in meeting distinguished visitors, amongst them ex-Vice-President C. W. Fairbanks, Rear Admiral George Brown, Rear Admiral Albert Ross, U. S. U. S. N., Rear Admiral Geo. C. Foss, Chairman of the N., Hon. Geo. C. Foss, Chairman of the House of Representatives, etc. It is the fastest boat on our Naval Committee of the lake, and has served us excellently in that respect, since it has enabled the instructor during boat drills to move rapidly from boat to boat, correcting errors, and directing the progress of the drill.

"The engine has proved very satisfactory, and has given but very little trouble. The little difficulty we have had was due not to any fault in the make of the engine, but to the fact that it was carelessly put away at the close of the season.

"Very truly yours,

(Signed) "L. R. Gignilliat."

Real Simplicity in Engine Construction Means Greater Reliability, Lighter Weight, More Power



The Elbridge 6 Cylinder Marine Engine

Elbridge Marine Engines

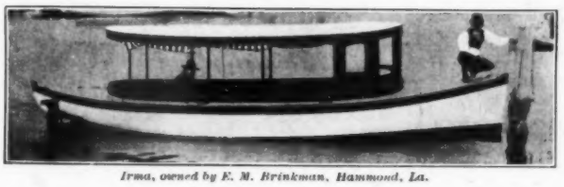
are of the simply, valveless, two-cycle type. Fewer parts, greater efficiency and less weight than any others. Proved by actual performance.

THE MOST COMPLETE LINE OF MARINE ENGINES IN THE WORLD

Seventy-five styles, sizes and prices. Get maximum efficiency from your hull by installing the motor *exactly* fitted to it. Our Service Department will give you information as to the type of motor *you* need. Write us. The new Elbridge Catalogue will be sent FREE on request. It should be in the hands of every Motor Boat enthusiast.

ELBRIDGE ENGINE CO., Dept. M., ROCHESTER, N. Y.

SCRIPPS MOTORS



Irma, owned by E. M. Brinkman, Hammond, La.

Many Marine Motors Are Good Until a Sure Test Shows Up Their Weakness

Scripps motors are designed and built to give continuous efficient service even under difficulties and trying conditions that would stop most marine motors.

Read this letter from the owner of a Scripps who was caught in a storm that would swamp most marine engines. The Scripps went through without a hitch.

"After giving my 8-10 h.p. Scripps motor a thorough test, I am more than pleased with same; have it installed in a cruising boat 28 ft. and a 7 ft. beam of good lines, and do 9 to 9½ mean miles an hour.

"I was caught in a severe blow on lake Pontchartrain two weeks ago tonight, not knowing the channel, and no searchlight equipment, had to rough it out all night—had all my front windows in cabin smashed in, but engine kept agoing, through it all. A fellow realizes the value of a good motor when he has an experience of that kind, and I'm satisfied there is none I've seen so far that are as reliable as this little piece of machinery I have in my boat."

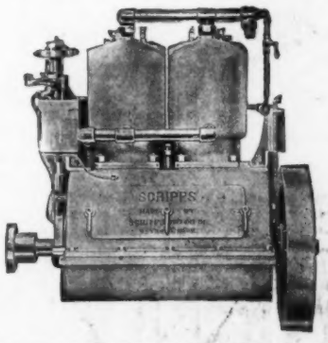
E. M. Brinkman.

If this is the kind of service you want in your marine engine, write to-day for our catalog, showing the complete line of Scripps motors from 4 to 100 H. P. All Scripps motors are of the four-cycle type and are made with from one to six cylinders. Our catalog describes and illustrates how they are made, and why they are the choice of the many experienced motor boat owners.

SCRIPPS MOTOR CO.

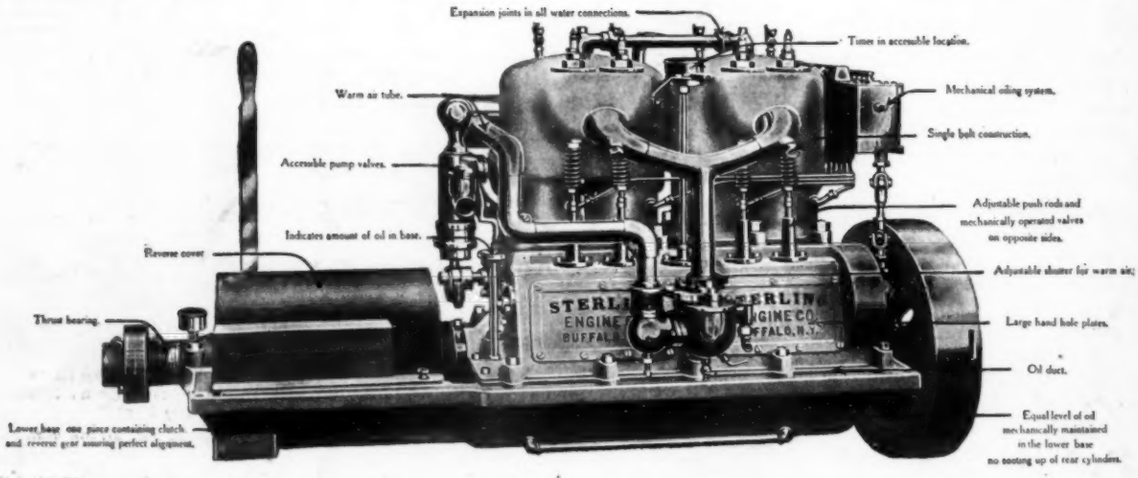
651 LINCOLN AVE. DETROIT, MICH.

National Association of Engine and Boat Manufacturers



STERLING ENGINES

THE MARINE ENGINE OF QUALITY


Expansion joints in all water connections.
Timer in accessible location.
Warm air tube.
Mechanical oiling system.
Single bolt construction.
Accessible pump valves.
Adjustable push rods and mechanically operated valves on opposite sides.
Indicates amount of oil in base.
Reverse cover
Adjustable shutter for warm air
Thrust bearing.
Large hand hole plates.
Oil duct.
Lower base one piece containing clutch and reverse gear assuring perfect alignment.
Equal level of oil mechanically maintained in the lower base no scoring up of rear cylinders.

IF YOU WANT AN ENGINE OF QUALITY, AN ENGINE OF ENDURANCE AND RELIABILITY, BUY A 1911 STERLING. DETAILS OF IMPROVEMENTS AND PRICES ON APPLICATION. LET US KNOW YOUR REQUIREMENTS NOW. READY FOR PROMPT DELIVERY

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